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THE JOURNAL OF AIR LAW AND COMMERCE

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FORM AND SCOPE OF THE CIVIL AIR REGULATIONS

JOHN H. WIGMORE*

I. ORIGIN OF THE CIVIL AIR REGULATIONS

Difficulty in Determining Standards. For several years prior to the issuance of the Civil Air Regulations, it had been difficult to determine what standards had been established by the Federal Government with respect to good flying practices as they were related to safety in air commerce and this difficulty was due, in considerable part, to the difficulty in getting access to the existing regulations. Regulations governing aeronautical activities had been issued, from time to time, by various individuals within the Department of Commerce and the Bureau of Air Commerce without any system for their clearance through any central office. They were signed by persons of various title and rank and many of the regulations could be found only in Departmental or Bureau correspondence. Hardly any two sets of these regulations were published in like size or style.

Difficulty of Enforcement. Because these regulations were issued by persons other than the Secretary of Commerce, as provided by the Air Commerce Act of 1926, they probably could not have been enforced in a contested case.

Necessity for Single Source of Regulations. With the increasing complexity of the many activities in aviation, it was at once apparent that there should be provided a single set of source material—uniform as to size, style, and general plan—which would give to each participant in aeronautics a complete picture of the Federal Government's position in the control of aviation—either by act of Congress or by regulation of the Secretary of Commerce, and

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also furnish the participant with a convenient handbook of good aeronautical practices.

Nature of the Regulations. These materials should be issued with sufficient care as to legal draftsmanship as to permit enforcement, when contested. They should be supplemented with simple explanatory publications so that the layman could readily understand and comply with their provisions, and they should be issued in such form and style as to permit easy and frequent amendment in order to keep pace with the rapidly developing art of flying.

Attempts to Revise Old Regulations. Many attempts were made to have the Bureau of Air Commerce staff revise the old regulations and bring them up to date. This proved to be impossible due to the very heavy load of exacting routine duties already imposed upon the Bureau. Finally, through the efforts of Col. J. Monroe Johnson, Assistant Secretary of Commerce, Fred D. Fagg, Jr., and the writer were invited to serve as consulting experts to the Bureau and undertake the task of revision. Howard C. Knotts was later invited to serve as a consulting expert when Mr. Fagg became Director of Air Commerce on March 1, 1937.

Time Necessary for Revision. In order to provide a comprehensive, practicable, and legally sound system of regulation which would be conducive to the healthy growth of aviation, the revision was allowed to take a period of 16 months (July, 1936-November, 1937). There was real need for the issuance of revised regulations by the winter of 1936-37 to increase the safety of flying practices, but only the emergent measures were provided for and the main revision was carried forward to November 1, 1937, when it was certain that a careful and workable plan would be put into effect. In the interim, to increase the safety of flight, a system of designation of civil airways was provided for the first time since the enactment of the Air Commerce Act of 1926, on July 7, 1936, and the beginnings of a system of air traffic control was instituted.

New Code Issued. The main part of the new code of Civil Air Regulations was issued to become effective Nov. 1, 1937.

II. Form and Scope of the Regulations

The Previous Practice of Publication. A vital defect in the publications practice (not system; for the rapid growth of problems and the lack of adequate time for the task had bereft the word "system" of any appropriateness)—a first vital defect was the failure to observe the fundamental distinction (fundamental for an administrative office) between *regulations* and *information*.

The Bureau abounded in valuable printed information of all sorts. And it was in enormous demand; one of the informational Bulletins was printed in 75,000 copies annually; for literally millions of young men are seeking for information on all phases of aeronautics. But the regulations, representing the law controlling aeronautic manufacture, operation, and navigation, was contained in one or another of these Bulletins, and the continual amendments in others, and these all indistinguishably published in the same series of numbered Bulletins, non-periodical, together with another and periodical series, containing information and regulation similarly intermingled. Neither the flying public, nor the State officials, nor perhaps even the Bureau officials, were enabled to find just what each needed without a wasteful search through an accumulated mass of material, some of it stale and out-of-date.

The Proposed System of Publication. The first thing to do, as all agreed, was to organize the different kinds of material into a system. And here it will be understood that there were various classes of persons whose needs were to be met,—the manufacturers, the transport companies, the private commercial operators, the amateur flyers, the aeronautic schools, the commercial pilots, the airport managers, the State aviation officials, the Bureau inspectors, and so on.

So the general publications system was to be inclusive and, as adopted June 26, 1936, was as follows:

SERIES	TITLE	NATURE OF	PUBLISHED BY
A	CIVIL AIR LAW	Loose-leaf, Letter size	Bureau or G. P. O.
AA	AMENDMENTS TO SERIES A	Multilith	Bureau or G. P. O.
B	CIVIL AIR REGULATIONS	"	Bureau
BA	AMENDMENTS TO SERIES B	"	Bureau
C	BUREAU OF AIR COMMERCE MANUALS (Explanations and information on Regulations)	"	Bureau
CA	AMENDMENTS TO SERIES C	"	Bureau
D	AERONAUTICS BULLETINS (Non-regulatory Information)	Octavo Serial Nos.	Bureau or G. P. O.
E	PERIODICALS		
	1. Air Commerce Bulletin	"	Bureau or G. P. O.
	2. Airmen Notices		Bureau
F	INSPECTION HANDBOOK	Loose-leaf, Letter size	Bureau
FA	AMENDMENTS TO SERIES F	Multilith	Bureau
G	ARMY-NAVY-COMMERCE PUBLICATIONS[1]	"	Bureau
GA	AMENDMENTS TO SERIES G	"	Bureau
H	MISCELLANEOUS MEMORANDA Classify as to type (M-, MM-, EI-, etc.)	Mimeograph	Bureau

1. Those published by the Bureau of Air Commerce or, now, by the Civil Aeronautics Authority.

Every publication, no matter what the future might develop, would find a place in one of these series.

Proposed System for Regulatory Material. The regulations part of this system was the most important. The *materials* to be included would be the regulations of the Secretary of Commerce, to whom the Air Commerce Act and its amendments gave such authority. But the Act, in various parts, gave a varied range of authority. Hence, each part of the Regulations, exercising some part of that authority, must recite that it was made by that authority; thus connecting it up in such a way as to insure its legality, and also to indicate to the public the basis of the regulation. (This method, inevitable under modern Supreme Court decisions, is the method now required by the Director of the Federal Register for all administrative regulations filed with him for publication.) A standard form was adopted, which precedes each main part of the Regulations.

Format of the CAR. The problem of format was to devise a form which should be all-inclusive, now and in the future, and yet should be flexible, to allow of constant future development; to make this form readily available for all the varied classes of persons who would be interested in knowing the regulations; and to formulate it in clear and concise terms.

These requirements, as applied to different phases of the work, resulted in the following plan:

(a) The Regulations would form a *single book*, but it must be made in *loose-leaf* form. Thus, the constant changes could be made by re-printing the particular sheet, and substituting it for the original one,—a plan already used by the Army and the Navy and many business establishments.

(b) The *type* must be clear and fairly large, and the *paper* strong. (Any one who has resorted to a copy of the Postal Manual at a local postoffice, and has observed its well-thumbed pages, cluttered with flying strips of pasted amendments in small type, will appreciate the importance of these two features.)

(c) Each chapter (now called Part) must be preceded by a *contents table* for that chapter. (Any one who has had to study some of the recent 100-section Acts of a legislature will appreciate the importance of this feature.)

(d) The *classification* must be inclusive, and yet must allow for future developments. The grouping actually adopted shows that this has been done: Aircraft; Airmen; Air Navigation Facilities; Air Carriers; Air Agencies; Air Navigation within the U. S.; Air Navigation without the U. S.; Unassigned; and Miscellaneous. This classification will serve for a generation or more. The "unas-

signed" contemplated the eventual enactment of legislation for *economic* regulation, and it was thought that the regulations dealing with such subject matter could be included in this division.

(e) The numbering of the successive sections (paragraphs) must be an *expansible decimal* system. This method, for laws, was started by Wisconsin a decade ago (Kansas disputes this priority), and is now in use in half a dozen States, and is yearly on the increase in adoption. It is the *only* method that makes feasible a permanent citing figure and yet allows changes to be absorbed into the system without confusion. In practical aeronautics, with its rapid progress and frequent change of detail, it is indispensable.

In brief, the method consists in dividing the whole subject into ten or less classified divisions; in subdividing each of these into ten or less sub-head (chapters, titles, or whatever term is used), and again assigning ten or less sub-heads to each of these chapters; and so on. Each of the large original parts is assigned a two-integer figure, e. g., 20. Each next sub-head is assigned one of the second integers, e. g., 22. Then each next sub-head is assigned a figure following a decimal point, e. g., 22.3, and each later subdivision, if any, an additional figure in the second decimal place, thus 22.34. With this allotment all main and sub-main headings can be taken care of, and the detailed elaboration (which is the part subject to frequent change) is taken care of by further sub-decimal figures. Thus: Airmen has the figure 2. Within this, Pilot Rating is 20. Pilot Examinations and Test for rating is 20.5. Physical examination is 20.52. Requirements as to time of accomplishing the physical examination are 20.520, 20.521, 20.522. And if any new situation calls for exceptions to this regulation 20.520, they would be inserted as 20.5200, 20.5201, and so on. This method is expansible for serving as long as the legal system itself endures. It permits prompt notice of changes; it makes change of details easy and clear; and it is permanent. Moreover, if and when completely effective for the new Administrative Code, it will save thousands of hours of labor and millions of dollars of expense. Any lawyer who has used the Wisconsin or the Kansas statutes will testify to its merits.

Of course, it requires careful formulation. But that too is a merit.

(f) *Marginal data* are also used to help the loose-leaf system. Every page bears at the top margin the beginning and the ending numbers of the sections covered on that page; thus, 14.03-14.0321; and at the bottom margin, the name of the chapter or title, thus Aircraft (at the left) and the effective date thus 11/1/37 (at the right). So when a change-sheet (on pink paper, for purposes of

easy distinction) is sent out and inserted, it shows its own place and its own effective date. (The Civil Air Regulations issued November 1, 1937, must be consulted, as some matters here referred to were omitted in the printed revision of May 31, 1938.)

(g) A final advantage of the system is the feasibility of *separate publication* of the separate chapters or titles. Different classes of persons are specially interested in different parts of the regulations. Thus, the aircraft-engine manufacturer needs lots of copies of CAR 13; the air carrier pilots are specially interested in CAR 21; all flyers want CAR 60 (air traffic rules); airport managers need specially CAR 30; and so on. One of the special bulletins of information was printed (in 1936) in 75,000 copies. Experience shows just what the demand is for the different parts of the regulations. Hence, the plan above described attains economy for the government and convenience for the public.

One final circumstance will show what careful thought was put into the preparation of every detail of CAR, viz. the *expansible binder*. The book of regulations of a certain other bureau, excellently composed in looseleaf style, has a board-binder so narrow that the loose-leaves readily project and get torn; and it is fastened by a cord, so that each time a new leaf is put in, it requires tedious manipulation and leads to copious ejaculation. The CAR binder avoids these shortcomings. (This binder was especially ordered for the Bureau of Air Commerce staff, but is of a kind generally available..)

Manuals. An important appurtenance of the CAR is the inspectors' manuals. Some 2000 employees on the staff perform the varied duties of inspectors, each with a special class of assignments. Their practice must be standardized, so far as possible, and their duties call for instructions based on past experience in the several branches of inspection. The Manuals embody this experience, and furnish general instructions which ensure uniform action throughout the country.

The Manuals embody an invaluable accumulation of information and guiding practices in every aspect of practical aeronautics. They are keyed up at every point with the corresponding regulations. They represent one of the finest achievements of the Bureau of Air Commerce; for the inspectors are the government's representatives that come into direct contact with all classes of citizenry interested in aviation, and the Manuals are the immediate means by which the government is enabled to carry out its regulatory powers with least inconvenience and greatest satisfaction to the citizenry at large.

LEGAL BASIS OF THE CIVIL AIR REGULATIONS

FRED D. FAGG, JR.*

I. INTRODUCTION

Air Commerce Act of 1926. The Civil Air Regulations, as originally published, were based upon the provisions of the Air Commerce Act of 1926. That legislation found its source of power largely in the commerce clause of the Constitution although it is quite clear that, as to choice of language to channel the authority, the framers of the legislation availed themselves of the best experience to be found in other statutes and international agreements dealing with analogous situations.[1]

Scope of Federal Jurisdiction. The Civil Air Regulations do not extend the Federal jurisdiction over aeronautics beyond the interstate and foreign air commerce provisions of the basic statute. They leave more functions to the individual States than do the earlier regulations. In submitting the draft of the Air Commerce Act to Congress, the Commerce Committee of the Senate, in its report to accompany the draft, stated that intrastate flying activity was to be left to the States.[2] On the other hand, in its report, the House managers indicated a desire to subject *all* aircraft to the Federal air traffic rules.[3] The early air traffic rules issued by the Secretary of Commerce followed the desires of the House managers—despite the probable lack of legal basis therefor. In the Civil Air Regulations, the scope of Federal jurisdiction has been limited to the field which can be supported on sound Constitutional grounds.[4]

Civil Aeronautics Act of 1938. The safety provisions of the new Civil Aeronautics Act were written so as to codify Department of Commerce practices set up by the Civil Air Regulations. The original bills introduced during 1938, to deal with the airline problems, included only part of the safety provisions and the bills were

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* Dean, School of Commerce, Northwestern University.

1. See the legislative history of the Air Commerce Act, *Law Memoranda Upon Civil Aeronautics*, compiled by Frederic P. Lee for the House Committee on Interstate and Foreign Commerce, 1928.
2. *Ibid.*, p. 29.
3. *Ibid.*, p. 50.
4. The Department of Commerce began its change of front in this regard during the summer of 1936. A memorandum to the Solicitor, prepared by Mr. Quigley of the Solicitor's office, urged a limitation of Federal jurisdiction in the matter of air races. The present writer prepared a supporting memorandum on the same subject which was concurred in by Col. J. H. Wigmore, Consulting Expert to the Department of Commerce.

amended so as to deal with the entire Federal field of civil aeronautics.

II. Certificate versus License

Misuse of Terms. The term *license* can not be found in the Air Commerce Act of 1926 nor in any report issued by the framers of the legislation. For nearly ten years, however, the Federal regulations issued by the Secretary of Commerce used the term regularly. The framers of the statute were well aware of the CINA Convention of 1919 and employed the term *certificate* when dealing with aircraft airworthiness and airman competency. The persons who drafted the early regulations were probably less familiar with the international background of experience and no doubt followed the language employed in the various State statutes which had existed since 1911.

International Background. In this connection, it is interesting to note the usage in the international convention. Article 11 of the CINA Convention provides that "Every aircraft engaged in international navigation shall . . . be provided with a *certificate of airworthiness* . . ." The term *license* is not used in that article. Article 12 of the Convention provides that "The commanding officer, pilots, engineers and other members of the operating crew of every aircraft shall . . . be provided with *certificates of competency and licenses* . . ." To understand the differentiation, we must turn to the provisions of Annex E to the Convention. There we discover that the license *includes* the certificate of competency[5] and that the latter relates solely to the *flight* test (for pilots) or *radio* test (for navigators).[6] The *license* seems to issue as a result of two showings, as follows (1) a satisfactory medical examination and (2) a certificate of competency awarded upon completion of a satisfactory flight or radio examination, as the case might be.

American Statutory Usage. When the framers of the Air Commerce Act came to write those particular provisions, they decided to include the *medical* requirement within the meaning of the competency certificate along with the flight test requirement, and this seems eminently sound. Hence they changed (enlarged) the meaning of certificate of competency from mere proficiency in manipulating the controls of an aircraft, or using radio equipment, to *fitness to perform some function with respect to aircraft*—including physical and other types of fitness.

American Treaty Usage. Following close on the heels of

5. See Annex E, Ch. I, Sec. 1, par. 3.
6. See Annex E, Ch. I, Sec. 5.

the Air Commerce Act of 1926 came the Pan American Convention of 1928, signed at Havana, in which the expression *certificate of competency* only is used. In the bilateral arrangements, the term *license* seems to be used only to cover the case of aliens, as is illustrated in the recent arrangement between the United States and Canada, effective August 1, 1938.[7]

Advantage of Certificate Concept. The wisdom of the *certificate* concept is at once apparent when one considers that the Air Commerce Act of 1926 assumes that there is a *right* to fly limited only by the fitness of the aircraft and operating personnel—in the interest of safety to those participating in aeronautics and to persons on the ground. In Section 10, the Air Commerce Act specifically declares a public right of freedom of interstate and foreign air navigation in the navigable airspace. The concept of license must always be associated with *privilege* instead of *right,* and nothing seems clearer than that neither the case law of the United States nor the Federal statute considers flight to rest on mere privilege. The critic may insist that both concepts come essentially to the same thing and that this argument possesses little merit. Let us make one simple point: If there be a *right* of flight subject only to a statutory limitation of fitness, then no over-zealous administrative officer can prevent from flying one who qualifies as fit. He may, of course, accomplish something of the same end by setting up very rigid safety standards, but the necessity for (or reasonableness of) the standard may be challenged in a court proceeding, and the officer may be compelled to issue the certificate. If flight be but a *privilege* subject to administrative control, the degree of discretion left to the administrative official is quite likely to be greater and cover more than *safety* matters—unless the administrative decision has been limited by a very detailed statutory standard. And this last possibility is the one thing that should be avoided in a field that is growing as rapidly as aviation. Further, it must be remembered that a *license* may be terminated at any time at the will of the sovereign, that there will be no recourse by way of compensation for business or property, and that "due process" has no application.

Civil Aeronautics Act of 1938. The first real issue, in preparing the Civil Air Regulations, involved the overthrow of ten years of faulty thinking on the part of government officials and pilots generally. The aviation public had become accustomed to the term *license* and has even yet failed to realize the legal implications—detrimental to aviation—which are associated therewith. It

7. Executive Agreement Series No. 129, 1938.

will no doubt take several years to build up a new language tradition and usage that will accept the term *certificate* as one of aviation's legitimate children. However, the legitimizing process will no doubt be accelerated by the fact that the language of the new Civil Aeronautics Act codifies the practice of the Civil Air Regulations, and that from now on *certificate* is the only term authorized.

III. Aircraft

Registration:

Bureau of Air Commerce Practice. The second legal problem confronting those drafting the Civil Air Regulations was to clarify the Federal position with regard to aircraft registration. As a result of a conservative interpretation of the provisions of the Air Commerce Act, the Bureau practice for ten years had been to maintain *two* aircraft registers, one official and another not publicly recognized. The *official* register included only those aircraft which had received a certificate of airworthiness, and Section 7 of the Air Commerce Regulations[8] carried this statement: "Unlicensed aircraft, though entered of record for purposes of *identification* as required by law, are not *registered* aircraft within the meaning of these regulations." In order to have an actual record of the aircraft flying above the lands and waters of the United States, the Bureau had maintained an unofficial register of *identified* (unlicensed) aircraft. This had been made possible by resort to authority granted by Paragraph (e) of Section 3 of the Air Commerce Act which authorized the Secretary to "establish air traffic rules for the . . . identification of aircraft . . ." A desire to bring some order out of this situation led to a re-examination of the legal features involved and the taking of a more bold step as to interpretation of the basic act, though the question was not finally settled until the Civil Aeronautics Act was passed.

The International Antecedents. When, in the CINA Convention of 1919, the contracting parties summarily ended the Fauchille arguments as to freedom of the airspace and, in Article 1, asserted that they recognized "that every power has complete and exclusive sovereignty over the airspace above its territory," it was only natural that, in Chapter II of the Convention, they should immediately concern themselves with matters of nationality determination. Annex A to the Convention provided for a certificate of registration which should, among other things, show the nationality and registration marks. To the United States of America was assigned the letter "N" as the *nationality* mark.

8. Bulletin 7.

The Air Commerce Act. The framers of the Air Commerce Act were not only familiar with this international background but had also enjoyed a long familiarity with the system of registration of vessels. However, in rewriting the bills in committee, the matter was inadvertently permitted to become confused and the provisions of the act are, at best, ambiguously stated. As a result, the unsatisfactory Bureau procedure above-mentioned was developed.

The Pan American (Habana) Convention.[9] In this treaty, the United States was quite clear as to the distinction between *registration* and *airworthiness* certificates. Registration is dealt with in Articles 7-11 and airworthiness in Sections 12 and 10 (b)).

The Civil Air Regulations. The new theory adopted by the Secretary of Commerce, until again supplanted by a more conservative view, was that the certificate of registration was intended primarily for purposes of nationality determination and could be *required,* through the device of the identification mark, of every American aircraft entering the navigable airspace and that such certificate could be issued without regard to the airworthiness of the aircraft. Authority for its issuance was bottomed here, as in the international convention, upon the declaration of sovereignty of airspace.[10]

Identification Mark. The way in which the desired result was accomplished was through the requirement of an *identification* mark. Such mark was composed of three parts, as follows: (1) The international symbol "N," (2) The classification symbol "C," "R," "X" or a bar (—), and (3) a number (instead of a combination of letters as provided by the CINA Convention). Again, the power to make air traffic rules was invoked and it was provided that "no flight of aircraft shall be made . . . in the navigable airspace over the lands or waters of the United States unless such aircraft is possessed of and displays a valid identification mark asigned or approved therefor[11] by the Secretary."[12]

9. For text of the treaty, see 9 J. A. L. 488 (1938).
10. Section 6.
11. This to take care of army, navy, marine corps, etc., aircraft.
12. In the course of a memorandum prepared on this subject by Col. J. H. Wigmore, appears the following: "(1) *Crandall* v. *Nevada,* 6 Wall. 35, declares that every citizen of the United States is entitled to freedom of transit from one State to another, regardless of commerce; and since registration proves United States nationality, the title to this freedom of transit can only be proved by registration. (2) The Air Commerce Act declared (Section 10) a 'public right of freedom of interstate navigation in the navigable air-space,' and this public right, accorded to citizens only, can be claimed only after registration proving nationality. (3) The Air Commerce Act requires the Secretary of Commerce to provide for 'the navigation, protection, and identification' of aircraft. Now *identification must* involve nationality, which is proved only by registration. (4) The Air Commerce Act [Section 11 (a) (2)] forbids any foreign aircraft to navigate in the United States. This is a fundamental basis for national defense. Now registration as a United States aircraft is the only way to detect any foreign craft that may be swarming into any part of the United States.

"It may be objected that the Air Commerce Act provides [Section 3 (a)]

The Civil Aeronautics Act. In order to clarify the law on this problem and give force to the practice first proposed by the Civil Air Regulations (before the conservative doubts went into the ascendency) the provisions of the new act[13] were drawn up with considerable care and should keep the "registration" skeleton in the secure confines of the closet.

Aircraft Certificates:

General. International agreements and statutes deal only with aircraft *airworthiness* certificates. This is due to the fact that they are only concerned with those aircraft which actually enter the airspace. From an administrative standpoint, however, it is desirable for the government to provide at least two other kinds of aircraft certificate, as follows: (1) A *type* certificate—issued to a designer of aircraft (or component part thereof) certifying that the type (or component), as represented by authenticated data in the form of specifications, descriptions, and drawings on file in the administrative office, has been found to be suitable as a basis for the manufacture of airworthy aircraft (or component) constructed in accordance with such data, and (2) a *production* certificate—issued to a manufacturer certifying that he has complied with the prescribed requirements for the production of aircraft (or component part) in quantities of an exact similarity of type, structure, materials, assembly and workmanship with the specifications, descriptions and drawings forming the basis for the type certificate.

Airworthiness Certificate. The essence of the task delegated by Congress to the Secretary of Commerce was that of determining whether or not any particular aircraft presented to him for inspection was fit to fly. To determine this fact in the early days of flying might have been difficult from a technical standpoint but the uses to which aircraft were put were relatively few in number.

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that registration shall be granted 'if the owner requests such registration.' But this optionality applies merely to the registration itself. But navigation is something more. A United States owner does not *have* to register simply because he owns an aircraft. But when he tries to go up in the air with it, he comes to a very different stage, viz., navigation. Here he may become subject to additional requirements that did not apply to him merely as owner. At this second stage, viz., navigation, he may be required to do something more as a pre-condition to navigation.

"This is simply copying the long-standing precedent of the maritime shipping laws, on which the A. C. Act is partly modeled. E. g., the U. S. C. A. Tit. 46, Shipping, Ch. 2, Registry, Section 11, provides that Vessels built in the U. S. and belonging to U. S. citizens *may* be registered; it is not compulsory. So too the Shipping Act of 1916, U. S. C. A. Section 808, provides that any vessel owned by United States citizens *may* be registered, or enrolled or licensed; this too is not compulsory. But when it comes to navigation, we find in U. S. C. A. Ch. 12, Section 251, domestic commerce, 'vessels *enrolled* in pursuance of this chapter, *and no others*,' shall be . . . entitled to the privilege of the coasting trade. And again in Section 351, every vessel of the U. S. going abroad shall have a passport, based on registration. So too the Ship Mortgage Act applies to 'vessels *documented* in the United States,' defined as meaning registered or enrolled or licensed.

"The Air Commerce Act merely follows this precedent."

13. Section 501.

Hence the simple classification of aircraft by *type*[14] rather than by *flying operations engaged in*[15] as provided for in the Civil Air Regulations. With the rapid development of airline operations, it became important to distinguish between those aircraft which were airworthy when engaging in day-contact or night-contact flights and those engaging in instrument or over-the-top flight. Here, again the concept of *certificate* of airworthiness is far superior to the *license* (authorization) idea. The scheme provided makes sense and will appear to anyone who is interested in being practical and fair from both private and governmental standpoints. The "C" airworthiness certificate implies that the aircraft is considered airworthy for most purposes (including that of carrying persons or property, for or without hire), and the "R" certificate implies that the aircraft is airworthy for certain special purposes—exclusive of passenger carrying. The use of these letters provides a simple and practical means of public education and, hence, public safety.

Experimental Certificate. The experimental certificate, as set up in the Civil Air Regulations, was provided to give flexibility to the situation and authorize the flight of some aircraft that could not otherwise be lawfully operated within the United States. The "X" certificate was provided so that an aircraft, whose qualities of airworthiness remain unknown—as where the craft has not been test-flown (even though a complete stress analysis may have been made). Manifestly, until the craft has been successfully flown, it cannot be rated as to airworthiness. There must be some paper authorization for such test flight or flights. The "X" certificate therefore denotes only that the aircraft is *rated* satisfactory for purposes of experimentation in flight because *inspection on the ground has disclosed no unairworthy feature with respect to structural integrity, workmanship or flight characteristics.* This certainly is as far as government can go in such a situation. The experimental certificate is the nearest thing to a *license* that is issued, since its main purpose is to *authorize* one or more *flights* to demonstrate whether or not the aircraft is fit to receive an airworthiness certificate. Possession of such a document should satisfy the requirements of the Uniform Aeronautical Regulatory Act which requires that the aircraft be possessed of "a currently effective license issued by the Government of the United States;" but which

14. It should be noted that in the Civil Air Regulations the basic classification as to type is four-fold, as follows: (1) airplane, (2) glider, (3) rotorplane, and (4) aerostat. See CAR 01.17. A sub-classification, as to type, will be found for each major classification. See, for example, CAR 04.01 for the classification of airplanes.

15. This type of classification has been developed for the first time in the Civil Air Regulations. See, for example, CAR 01.220 for the airworthiness certificate classification adopted for airplanes, and CAR 01.221 as respects gliders.

specifically provides that the restriction shall not apply to "a non-passenger carrying flight solely for inspection or test purposes authorized by the (State Aeronautics Authority) to be made without such license." Possession of such a Federal certificate might render the local permission unnecessary. At any rate, it will go far to uphold the uniform State provisions requiring the application of Federal standards of fitness.

Airworthiness Standards. The minimum requirements to be met under the classification scheme presented in CAR 01. will be found duly spelled out in CAR 04. (Airplane Airworthiness), CAR 05. (Glider Airworthiness), CAR 06. (Rotorplane Airworthiness), and CAR 07. (Aerostat Airworthiness). The last three of these chapters have not been issued.

The Civil Aeronautics Act. The new legislation codifies completely the system of aircraft certificates provided for in the Civil Air Regulations. However, some provision must be made in or under the new law for the issuance of an *airworthiness* certificate for an aircraft for which a *type* certificate has not been issued.

IV. Airmen

General. The Air Commerce Act of 1926 defines the term *airman* as meaning "any individual (including the person in command and any pilot, mechanic, or member of the crew) who engages in the navigation of aircraft while under way, and any individual who is in charge of the inspection, overhauling, or repairing of aircraft or of parachutes."[16] In preparing the Civil Air Regulations, it became necessary for the first time to provide for the rating of *air traffic controllers* and *airline dispatchers.* Neither of those functions was specifically mentioned in the Act but, for purposes of the regulations, it was assumed that both the traffic controller and the dispatcher could reasonably be included within the definition. Whatever doubts may have existed as to the propriety of inclusion thereunder have now been resolved satisfactorily for, in the new Civil Aeronautics Act, the definition of airman specifically includes the air-traffic control-tower operator and the aircraft dispatcher.[17]

Pilot Rating:

General Ratings. The general classification and rating of pilots adopted by the Civil Air Regulations is based upon the number of hours of solo flight which the pilot has made and the particular

16. Section 9 (k).
17. Section 1 (6).

kind of aeronautical activity for which he is deemed competent. Except for the student rating at the time it is first issued, each *general* rating will include an *aircraft* rating specifying the type, weight and engine classification of the aircraft which the pilot is deemed competent to fly and a *flight area* rating specifying the geographical area in which he is deemed competent to pilot aircraft. These latter ratings merely amount to the specification of the details not furnished by the general classification. The general scheme employed in the earlier Department regulations was continued except that the term *Solo* was substituted for *Amateur* and *Commercial* was substituted for *Transport*. Glider pilot ratings were continued under the same classification as had been used.

Special Ratings. The Civil Air Regulations also provided for the addition of *special* ratings to the general ratings previously explained. These special ratings were two in number as follows: (1) instructor and (2) instrument. The minimum requirements specified in the new regulations were but slightly different from those of the earlier regulations. Under the earlier regulations, the only provision for rating instructors was for those instructors who served in connection with the so-called "approved" schools. Also, under the earlier regulations, a differentiation was made between a "scheduled instrument rating" and a "non-scheduled instrument rating." The former rating was issued only to pilots actually in the employ of a scheduled airline, and was considered as indicating a superior ability to fly on instruments. Such a distinction caused considerable confusion and dissatisfaction and was quite unsound since the essential significance of the instrument rating was to indicate one's fitness to operate an aircraft under conditions of instrument flight. That question could only be answered yes or no and, if answered affirmatively, the applicant should be entitled to an instrument rating. Such was the theory of the Civil Air Regulations and this has been generally accepted as not only being legally sound but personally desirable to the various pilots throughout the country.

Student Rating. Under the previous regulations, a student was required to obtain a certificate from a medical examiner prior to manipulating the controls of aircraft in flight. The cost of such certificate was $10.00 and this charge prevented a large number of persons from finding out whether or not they would care to learn to fly. To obviate this difficulty and promote additional aviation activity, the Civil Air Regulations made it lawful for a student to fly with, and receive instructions from, a certificated flight instructor without first being possessed of a medical examination

certificate. However, the public interest was completely safeguarded by the requirement that, prior to solo flight, the student must obtain a student cerificate. To get such certificate, he must have successfully passed a medical examination.

Pilot Certificate. The pilot certificate provided for in the Civil Air Regulations consisted of a single document showing the *general* rating together with any *special* rating and also showed the *aircraft* rating as to type, weight, and engine classification of the aircraft which the pilot was deemed competent to fly, together with a specification of the *flight area* within which the pilot was deemed competent to fly. Any *change* of rating within the life history of the certificate could be easily incorporated into such document and thus the record kept current for inspection purposes.

Airline Pilot Rating. For the convenience of the airline pilots, the requirements for their rating were set forth in a special division of the Civil Air Regulations.[18] The general classification scheme pertaining to minimum requirements that had been employd for other pilot ratings was used in this chapter and airline pilots were also rated as to specific kinds of aircraft which they were deemed competent to fly in scheduled airline operation.

Air Traffic Controller. To provide a system of control over those persons engaged in directing air traffic in the vicinity of congested terminal areas, the device of Airport Control Tower Operator rating was set up by the Civil Air Regulations. Airport Control Tower Operators were classified as follows: (1) junior, (2) associate and (3) senior control tower operators and minimum requirements were established for each of these three classes. Any question as to the legality of such rating under the terms of the Air Commerce Act has now definitely been settled for the future by the passage of the new Civil Aeronautics Act of 1938. The new legislation provides specifically for such rating.

Airline Dispatcher. As originally proposed, the Civil Air Regulations provided for a three-fold classification of airline dispatchers as follows: (1) junior, (2) associate, and (3) senior airline dispatcher, and this basis of classification will undoubtedly be found to be desirable at some later period. However, for the present, the Regulations satisfied themselves with the establishment of a single set of minimum requirements for an airline dispatcher. Again the legality of such a rating under the terms of the Air Commerce Act of 1926 has now been settled by the passage of the Civil Aeronautics Act of 1938.

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18. Part (chapter) 21.

Other Airmen Ratings. The Civil Air Regulations took over almost entirely the provisions of the earlier Department regulations with respect to (1) Ground Instructors, (2) Mechanics, and (3) Parachute Riggers. The rating of mechanics will undoubtedly be spelled out in much greater detail in the future in order to deal with the very complex situation which is developing in the field of aircraft mechanics and aircraft engine mechanics.

V. Air Navigation Facilities

Airport Rating. The Air Commerce Act of 1926 required the Secretary of Commerce to provide, by regulation, for the examination and rating of air navigation facilities available for the use of aircraft of the United States as to their suitability for such use, but the Act also provided that such rating should be made only upon the *request* of the owners of such air navigation facilities.[19] Therefore, for many years it was the practice of the Bureau of Air Commerce to rate airports and landing fields only when requested to do so. As scheduled airline operations increased within the country, it became necessary, however, for the Secretary of Commerce to determine whether or not it was reasonably safe for any particular type or model of airline aircraft to land at, or take-off from, any given airport, and, if so, under what conditions such landing or take-off would be reasonably safe. The control of scheduled airline operations thus forced the Secretary of Commerce to interest himself in the rating of the large number of airports throughout the country which were regularly being utilized by the air transport companies. This practice led to the establishment of a country-wide airport rating classification system which was set up in preliminary drafts of the Civil Air Regulations. When the larger airline equipment came into use, the airline interests urged the municipalities, in the interest of safety, to enlarge the airports. The cities complied quite willingly for a time but, when the airline requests for greater space continued, the cities began to rebel. Some had borrowed to their legal limit on the solemn, if misguided, assurance that 3,500 foot runways would be entirely adequate for any aircraft needs. When told otherwise, at a later date, they were quite naturally indignant. Mail service with this larger equipment was halted by the airlines, or upon order of the government. What was needed was at least two-fold: (1) an immediate yardstick of safe performance in terms of types of aircraft and length of runway (which yardstick was simple enough to be easily understood,

19. Section 3 (d).

and accurate enough to be considered reasonable), and (2) a forecast of runway lengths which would be adequate for future aircraft needs, to be determined, in part, by estimated aircraft performance. The government position was clear. It did not intend to dictate to any municipality as to what kind of an airport it should have. Its only function was to determine whether or not any particular equipment could be safely operated in scheduled service to and from a given airport. The city was, therefore, the sole judge of whether it wanted *Queen Mary* or *rowboat* service. Legally, such a position seemed eminently sound. The subject matter of these airport regulations had been complicated by so many difficult elements that no official regulations in this field have yet been issued.[20] Until the Civil Aeronautics Authority has completed its national airport survey, it is probable that it will not issue the airport rating chapter.

Other Facilities. While provision has been made in the classification scheme of the Civil Air Regulations for regulations dealing with other air navigation facilities, none have yet been issued.

VI. Air Carrier Operation

Scheduled Airline Certificate:

Air Commerce Act. The Air Commerce Act of 1926, as originally passed, contained no provisions specifically providing for the issuance of an airline competency certificate. The only possible authorization for such a certificate, prior to amendment of the Act, existed in the rather general authorization given to the Secretary of Commerce to issue "such other certificates as the Secretary of Commerce deems necessary in administering the functions vested in him under this Act,"[21] or in that part of the Act which authorized the Secretary of Commerce, in blanket fashion, "to make such regulations as are necessary to execute the functions vested in him by this Act."[22] When the Act was originally passsed, the framers were concerned only with aircraft airworthiness certificates and airmen certificates. On June 19, 1934, an amendment to the Air Commerce Act was approved which provided specifically for the issuance of an airline certificate by the Secretary of Commerce to any person (airline) which passed a satisfactory examination given by such Secretary in order to determine his (its) fitness. Prior to the issuance of the Civil Air Regulations in 1937, no airline certificate

20. See *Fred D. Fagg, Jr.*, "The Problem of Airport Size," 8 JOURNAL OF AIR LAW 560 (1937).
21. Section 3 (f).
22. Section 8.

was issued by the Secretary of Commerce. Instead, for a long period of years, the device of an informal *letter of authority* was issued to those scheduled airlines which were rated as competent by the Secretary. The theory adopted seems clearly to have followed from the concept of *license* and so the document issued by the Secretary was construed to be an *authorization* to the individual company to carry on its oprations. In granting this *permit* the Secretary frequently included terms of limitation with respect to the operation which appeared to him to be necessary in the interest of safety. These letters of authority were most informal in nature and were frequently to be found in the correspondence (including telegrams) between the government and the airlines. In some cases, the authorization consisted of a mere handful of words in effect authorizing the applicant to *run an airline.*

Scheduled Airline Competency Certificate. The Civil Air Regulations immediately terminated the license concept and substituted therefor the airline certificate of competency. Under this theory, an applicant was prima facie entitled to operate an airline in interstate or foreign air commerce if he could demonstrate his ability to meet the minimum safety standards set up by the Secretary of Commerce for such operation. The approach of the new Regulations was through the establishment of a reasonable set of minimum requirements for scheduled airline operations and attention was given to the classification of such minimum requirements into a practicable system. An applicant who desired to carry *passengers* in scheduled air transportation was required to show: (1) evidence of sufficient financial strength as to enable him to conduct his operations with safety for a period of at least one year; (2) a route properly equipped with air navigation facilities requisite to the type of service proposed; (3) proper and sufficient aircraft; (4) qualified airmen; (5) schedules established with regard to safe operation; and (6) operations and maintenance manuals containing the material and procedures deemed necessary for safe operation. In each case the applicant was required to show the kind of carrier operations he proposed to engage in—whether (1) visual-contact day, (2) visual-contact night, or (3) instrument or over-the-top operations. When such applicant had reasonably demonstrated his fitness for such carrier operations, the Secretary then issued to him a *certificate,* together with several appended documents (*letters of competency*) which were considered legally a part of such certificate and which specified in considerable detail the individual elements of operation for which said operator was deemed fit. In these appended letters of competency, there were specified the particular details with re-

spect to (1) service, (2) route, (3) aircraft, (4) maintenance, (5)) airmen and (6) weather, affecting the airline operations. The intention of the Regulations was to provide a simple and flexible scheme which would meet both the needs of Government and the airlines and permit amendment from time to time as the rapid change of the business required. Again let it be repeated that the theory was not that Government *granted a privilege* to an operator but rather that the Government took the position that *an operator was entitled to engage in any kind of airline operation for which he could demonstrate fitness.* The applicant who proposed to carry *goods* only could qualify under a less rigid set of minimum requirements.[28]

Airlines in Foreign Commerce. CAR 41 (which has not been issued) was scheduled to establish the minimum requirements and certificate procedure for *American flag airlines* going outside the Continental limits of the United States. There seems to be no question of jurisdiction over such airline operations—within or without the three-mile limit—but obvious differences in operating technique made necessary because of a lack of ground aids (or the existence of a different type of such aids) and the problems of over-water flying etc., made it desirable to prepare these regulations with considerable care, in the light of our best experience. *Foreign flag airlines* were to be covered in CAR 45. The *operating* regulations of these carriers, as distinguished from the certificating chapters, were to appear as CAR 71 and CAR 66, respectively.

CAR 40 and CAR 61. CAR 40 sets up the *minimum requirements* for a scheduled interstate airline competency certificate and establishes the *procedure* by which the certificate and its component letters of competency may be secured, whereas CAR 61 sets up the regulations under which such airline is *operated* after it has secured such certificate. For some time it was urged that these two chapters be combined but the merits of separating them finally became so apparent that they were issued as two distinct chapters of the Civil Air Regulations. The provisions found in CAR 61 were in the main revisions of the old Aeronautics Bulletin No. 7-E, prepared by Major R. W. Schroeder and Denis Mulligan of the Bureau staff. Bulletin No. 7-E represents a landmark in the field of airline regulations and the new Civil Air Regulations chapters pertaining to airlines owe a great deal to its authors.

28. CAR 40.3.

VII. Air Traffic Rules

General. The early air traffic rules were designed to cover visual-contact flight and, as additional navigation instruments were designed and as technical skill progressed to make instrument flight possible, there arose a need for additional rules to safeguard this type of operation. *Inter-airline agreements* were drawn up, with the assistance of the Department of Commerce, to prevent collisions and these *gentlemen's agreements* served an important part in promoting safety. The inherent weakness of the device was that the itinerant aircraft, civil or military, was not aware of these agreements or could not be counted on to observe them. The collision hazard continued until the situation became intolerable. Several near accidents were observed when passenger airline aircraft nearly ran into formation, and other, flights of military aircraft. The draftsmen of the Civil Air Regulations, therefore, inherited a very perplexing problem which had been forced upon everyone in aviation by its own technical advance. And, if then, the Civil Air Regulations seem complicated in this respect, it is at least in part due to the fact that—whether we like it or not—flying has become complicated.

Jurisdiction. The early air traffic rules consisted of a carefully drafted set of sensible regulations which purported to be applicable to all aircraft (wherever flying) within the United States. But the legal theory implicit in the Civil Air Regulations is that Federal jurisdiction extends only to interstate (and foreign) commerce. It assumes that, in this respect, the framers of the Air Commerce Act were somewhat guilty of wishful thinking (in their statements relative to traffic rules) and that, in preparing the new regulations, it would be wise to follow a course that seemed certain to have Constitutional support. The draftsmen, therefore, proceeded with caution into any field that might seem to be subject to State jurisdiction, yet did not hesitate to subject intrastate activity to control when that activity could be reasonably said to constitute a burden on interstate commerce, or a danger to it.

Civil Airway Designation:

The Air Commerce Act. As defined in the Air Commerce Act, civil airway meant "a route in the navigable airspace designated by the Secretary of Commerce as *a route suitable for interstate or foreign air commerce.*"[24] The Act authorizes the Secretary to *designate* and *establish* civil airways and to *provide air navigation facilities along such airways.*[25]

24. Section 9 (j).
25. Section 5 (b).

Air Navigation Facilities.[26] The types of physical facilities which have been furnished by the Federal Government as an aid to aeronautical activity, and which serve in part to determine the location of an airway, are of several types and will include the following:

1. *Emergency landing fields*—for all types of operation.
2. *Light beacons*—for visual-contact night operation.[27]
3. *Radio ranges*—for instrument operation.[28]
4. *Radio markers*[29]—for instrument operation.
5. *Cone of silence markers*[30]—for instrument operation.
6. *Instrument approach systems*[31]—for instrument operation.

Informal Airway Designation: The Secretary of Commerce commenced the establishment of airway aids immediately after the passage of the Act but did not attempt any formal (legal) designation of civil airways until July 7, 1936—ten years after the Act was passed. To understand the reason for his inaction, we must consider the history of air navigation facility development and utilization. When the air mail system was instituted, the first step taken was the provision of intermediate landing fields for use in case of motor failure or other emergency, and a line traced from one emergency field to another between terminal points would serve

26. There are other services performed for the aviator besides the mere physical facilities established and maintained by the Federal Government. The first step to be taken in locating a civil airway is the making of a *route survey* (in the air and on the ground) in order to determine the most favorable terrain over which to fly. To accomplish this purpose, it is necessary to find an area which offers the greatest number of natural emergency landing fields (in the shape of level farm land, cow pastures, etc.), and which offers the best percentage of good flying weather. And, when an airway has been selected, it is of course necessary to have *accurate maps*—which have been designed for aviation uses—available.

27. The light beacon structure is frequently used as a check point for visual-contact day flying, although the usage at present is largely confined to itinerant aircraft not equipped with apparatus for receiving radio range signals.

28. These beacons are used also for flights made under visual-contact flight conditions—particularly by the scheduled airlines. As more aircraft are being equipped with radio apparatus, the usefulness of this type of facility increases.

29. This is the so-called fan-type marker and is used to identify a position on a civil airway. Emitting a radio wave that goes out in the form of a fan or screen, it serves to mark the boundary of a control zone of intersection, a point of fix on an airway, or to otherwise aid an aircraft in determining its exact position. For studies on this type of facility, see Bureau of Air Commerce Safety and Planning Division Report No. 5, "Report on the Development of Fan Type Ultra-High Frequency Radio Markers as a Traffic Control and Let-Down Aid," by *Henry I. Metz* (January, 1938); Report No. 14, "The Development of Improved Ultra-High Frequency Radio Fan Marker," by *P. D. McKeel, J. M. Lee,* and *H. I. Metz* (July, 1938); and Report No. 17, "Tests of the First Manufactured Fan Marker," by *W. E. Jackson, P. D. McKeel,* and *H. I. Metz* (July, 1938.)

30. The positive cone of silence marker represents a distinct advance in aids to safe navigation and is particularly useful in the working of an orientation problem. For studies on this facility, see Bureau of Air Commerce Safety and Planning Division Report No. 8, "Report on Cone Silence Tests at Knoxville, Tennessee," by *D. M. Stuart* (April, 1938); and Report No. 16, "The Development, Adjustment, and Application of the Z Marker," by *W. E. Jackson* and *H. I. Metz* (July, 1938).

31. For a study on these facilities, see Bureau of Air Commerce Safety and Planning Division Report No. 1, "Report on the Status of Instrument Landing Systems," by *W. E. Jackson* (October, 1937).

to locate the civil airway. So long as visual-contact day flight was engaged in, there probably was no need (from a flyer's viewpoint) for any more formal airway designation. Visual-contact night operation depended upon the establishment of light beacons and the civil airways could then be more accurately identified by reference to these new beacons (patterned after and first installed by the marine lighthouse service) which was located every few miles along the airway.

While there was still no formal designation of civil airways, the result (from a flyer's viewpoint) was quite satisfactory. Collision hazards were to be avoided by simple *right-side* traffic rules, and the center of the airway was to be identified by reference to the light beacons (also marked for day-contact operation). In general, the light beacons followed the course of the emergency fields and so no confusion resulted. Then came demand for *instrument* operation and the provision of numerous radio ranges made such operation possible. For the first time, a real problem arose. Radio range courses could not be projected in such a way as to follow curves and twists in the terrain. Instead, despite all their eccentricities as to swinging, multiple courses, etc., they were projected essentially in straight lines. Immediately, therefore, the problem was presented: which airway aids determined the civil airway—the string of emergency fields, the line of light beacons, or the radio range courses? *Formal designation* of civil airways now became necessary.

Formal Airway Designation. In attempting to make formal compliance with the provisions of the Air Commerce Act when finally forced to do so by the intricacies of instrument flight, the Secretary chose a strip of land fifty miles in width to identify the civil airways designated. Such a width was thought sufficient to include within its path, *all three types of aids*—fields, light beacons and radio ranges. When the civil airways were narrowed to twenty miles, the problem of designation became more difficult. The method finally adopted was to start with the airspace located vertically above an area lying within a twenty-mile circle (ten mile radius) at each terminal, intermediate, or other specified point along the route, together with the area lying within the parallel lines (20 miles apart) connecting each of the above points. Where necessary, the radio range courses were shifted so that they were projected down the center line of such airway.

Designation System. Since the very essence of the air traffic rules relates to flight conduct on the civil airways, the regulations issued by the Secretary of Commerce designating such airways are

included in those rules. And, for purposes of establishing an air traffic procedure which would reduce the collision hazard, civil airways were classified (further designated) as follows:

1. Green airways—the main east and west trunk lines.
2. Amber airways—the main north and south trunk lines.
3. Red airways—secondary airways running in any direction.
4. Blue airways—tertiary, connecting airways.

Civil Aeronautics Act of 1938. Under the terms of the new law, the *Administrator* is empowered to *designate* and establish civil airways,[32] but this legislation spells out in greater detail the method by which airways shall be designated and established.[33]

Control Airport Designation. In order to prescribe a system of air traffic regulation with reference to activities in and around the most congested air terminals which would provide for the safety of aircraft moving in interstate or foreign air commerce, a selected number of airports were designated as control airports, and control zones were designated and defined in connection with these airports.

Control Zone of Intersection Designation. Similarly, in order to protect aircraft moving in interstate or foreign air commerce, it was necessary to designate certain control zones of intersection—those areas within which civil airways intersected and within which accordingly a considerable collision hazard existed. The *center* of such zone is represented either by (1) the radio range station located at an intersection of airways, or (2) the center of the intersection of the "on course" radio range signals projected down intersecting airways, or (3) the center of an "on course" signal projected down an airway, at a point designated by the Secretary. *The control zone of intersection* is the airspace above an area within a circle with a radius of *25* miles drawn from the center of such zone, whereas a *control zone* is the airspace above an area within a circle with a radius of *3* miles drawn from the center of a *control airport.* For purposes of determining the flight procedure and priorities, there was an additional classification and designation of green, amber, and red control zones of intersection.

Radio Fix Designation. For the same purpose of protecting interstate and foreign aircraft movements, it was necessary to designate certain radio fixes—a fix being a geographical location on a civil airway above which the position of an aircraft in flight can be accurately determined by means of radio only.

Flight on Civil Airways. Just as land or water traffic tends

32. Section 302 (a).
33. Section 302 (b).

to move along certain well-defined highways or sea-lanes, so also does air traffic tend to follow the most favorable air lanes. These lanes have been officially designated as the *preferred channels* for the flow of interstate and foreign air commerce. They were selected with due regard to their suitability for such air commerce and they have been implemented with various air navigation facilities to make their use more safe. The aviation public has been notified of their existence and has been invited to utilize them. During good weather they will normally be used because they offer the *best* means for safe travel; during bad weather, they *must* be used because they offer the *only* practical means of safe travel. The Federal Government would, therefore, be extremely unmindful of its responsibility if it did not provide necessary regulations for the use of such civil airways. With respect to these airways, its powers are supreme. State rights must yield to the paramount requirements of interstate and foreign air commerce. As an exercise of its power in this direction, bottomed upon the reasonable necessities of protecting interstate and foreign air movements, the Civil Air Regulations require that any person[34] or aircraft[35] engaged in flight within the limits of a civil airway (even though flying between strictly intrastate points) shall be possessed of a currently effective pilot certificate of competency and aircraft certificate. Any other course of action would be courting disaster. But this advanced step was not taken until the Civil Air Regulations were adopted. And the step was taken only in the light of the plain terms of recent rulings of the Federal Supreme Court.

Flight Elsewhere Than on Civil Airways. While the normal movement of interstate and foreign air commerce will be channeled within the geographical limits of the civil airways, it is quite possible (particularly during periods of good weather) to engage in such flights without such limits. For the protection of other such movements, the Civil Air Regulations require the possession of a currently effective pilot and aircraft certificate by all persons and aircraft engaging in such interstate or foreign air commerce. The Federal Government does not attempt to require such certificates of persons not engaged in such activity, although it may subject them to certain air traffic rules which are necessary for the protection of interstate and foreign movements. It leaves entirely to the States, the certification of persons and aircraft engaged in *intrastate* activities. Whenever the interstate movements on off-airway flights become sufficiently numerous, or the hazards thereto

34. Exceptions as to aliens are, of course, provided.
35. Exceptions are provided for.

sufficiently great, it is always possible to designate a new civil airway and thus afford adequate protection without concern as to jurisdiction. However, any attempt to designate the *entire area* of the continental United States as a civil airway would no doubt meet with failure in the courts as lacking necessary Constitutional support. *The reasonable necessities of interstate and foreign air commerce will continue to set the limits to proper Federal control.*

Contact Flight Rules. The air traffic rules relating to contact flight involve very few legal matters. The basic idea has been to permit the widest latitude, consistent with safe flying practice, to persons making flights wherein the altitude of the aircraft and its flight path can at all times be controlled by means of visual reference to the ground or water. The provisions with respect to weather minimums are based upon safe flying practice and have been quite generally accepted as reasonable.

Instrument Flight Rules. For this type of flight, the air traffic rules must necessarily be more stringent. Again, the theory has been to provide a practicable scheme of traffic control which can be readily understood, easily complied with, and which is the minimum of regulation for the type of flying engaged in. Flight altitudes must be carefully prescribed, and somewhat elaborate procedures developed to prevent collisions on the airways and, particularly, at the terminals. When the airways have been completely equipped with radio range courses, fan-type markers, positive cone of silence markers, and instrument approach systems, the procedure may be changed and simplified. Until that time, the present procedure will serve as the only adequate protection to instrument flight operations.

Air Meet Rules. The Civil Air Regulations leave all local air meet matters to the States, unless such meet is to be held on a civil airway or will endanger aircraft moving in interstate or foreign air commerce. The Federal Government has rightfully limited its jurisdiction to federal matters.

Certificate of Non-Application. Under the earlier air traffic rules, *waivers* were granted to particular individuals which in effect gave them permission to do certain things *despite* the prohibition of the general regulations. This waiver practice was believed to be legally unsound. The Supreme Court rulings had made it clear that a law, being a law, must be general in its terms, equally binding upon all persons under similar circumstances; and hence, that no administrative officer can exempt an individual citizen from obeying the general law. And, of course, the same principle applied to general regulations. Hence, the old practice of issuing a "waiver," i. e., of

exempting an individual from obeying a law was legally unsafe. The practice was full of risk to the regulations, because it was often necessary to impose penalties for violation of regulations, and the practice of "waivers" was thus likely to lead to judicial rulings declaring them void. In the re-drafting of the regulations, it was necessary to avoid this legal risk, and yet it was equally necessary to give some flexibility to certain traffic regulations. The remedy taken was to re-word such regulations so as to make them applicable only in certain classes of circumstances, and then to authorize the administrative officer to declare that the one or another set of circumstances existed; thus making the regulation applicable or not. Henceforth, whenever the public safety, the safety of those engaged in aeronautics or the interests of sound fostering and promotion of aeronautics is deemed by the Federal authority to require that these general air traffic rules, or any special rule, should not apply, or were never intended to apply, to the given situation, the Federal authority shall evidence such situation by a certificate setting forth in considerable detail the conditions under which the certificate will operate. The underlying theory is based upon the fact that the general rules were never intended (or are not now intended) to prevent this particular activity but that it was (or is) too difficult to spell out, in the air traffic rules, all the particular situations to which they would (or do) not apply. In legal effect, then, this is not permitting one person to do an act which is prohibited (by the rules) to all persons (including the person now exempted), but is instead stating that the general prohibition directed against a particular act or activity was (or is) not intended, by the Federal authority issuing such rules, to apply to persons who could (or can) meet specified requirements or to acts or activities when conducted in some specified manner—insuring, with reasonableness, the safety or general good of aeronautics. While the result may be much the same, there is an essential legal difference between the *waiver* and *non-application certificate* approach.

General. For ready reference and use of the pilot, the air traffic rules include, as appendix material, (1) a list of Federal airspace reservations, (2) a list of State airspace reservations—(if any are established), (3) a list of areas restricted by other Federal agencies, (4) a list of Federal traffic control stations, and (5) one special air traffic rule relating to the downtown district of Washington, D. C. (and which should have been issued by an Executive Order providing for an airspace reservation and so included in the first appendix).

Civil Aeronautics Act. The provisions of the new law, with respect to air traffic rules, follow those of the Air Commerce Act of 1926.

VIII. Procedural and Miscellaneous Chapters

Air Mail. These provisions related to the duties of the Secretary of Commerce under the provisions of the Air Mail Act of 1934, and dealt with the method by which the Secretary would comply with such provisions. This chapter is now rendered obsolete by the new legislation.

Aircraft Accident Investigations. The Civil Air Regulations codify the practice set up by the Secretary of Commerce, after March 1, 1937, whereby one or more persons not in the employ of the Department of Commerce, was appointed to serve as a member of the accident investigation board. This gave added assurance to the public of unbiased findings as to the cause of aircraft accidents. The Civil Aeronautics Act further codified the essential elements of this procedure by establishing an Air Safety Board to investigate accidents and report thereon and make recommendations with respect thereto.

Hearings Upon Certificates. This represents the first attempt to publish any *procedural* matters affecting civil aviation. It served a long felt want, but involves no new legal principles. It is, however, carefully drafted to meet the requirement of recent Supreme Court decisions and, in this respect, is in notable contrast with the practice of some other administrative agencies.

Penalties. The provisions of the Commerce Act with respect to penalties were assembled, classified, and republished for availability to all persons concerned. A separate chapter detailed the *procedure* incident to the *imposition, remission,* and *mitigation* of penalties. This procedure and that for certificate hearings provided for a full and fair hearing.

Authorization to Act. The intent of this Chapter was to provide by regulation, for the delegation by the Secretary of Commerce of authority to act for him in certain specified cases, and with respect to certain documents which issued from the Federal Government. It was intended to serve the needs of the Department of Commerce in giving authority to certain persons and set up the limits of such authority, and also to serve the public need by giving notice of such delegation of authority.

Definitions. In this chapter could be found the general glossary of all technical terms used in the Civil Air Regulations and

given some special meaning therein. Individual definitions, appertaining to a given chapter, could be found in such chapter. Hence, they were gathered together, for reference purposes, into a single convenient source.

Mode of Citing Regulations. As the Civil Air Regulations adopt the decimal system, for convenient reference and easy citation, it was believed desirable to spell out in considerable detail the exact method of citation utilized within the Regulations themselves. This was done with particular thought of controverted situations that might arise in course of litigation and not be immediately clear to counsel or to a court.

COOPERATIVE PLANNING OF THE CIVIL AIR REGULATIONS

HOWARD C. KNOTTS*

I. INTRODUCTION

Pericles' proud boast of his beloved Athens was:

> We differ from other states in regarding the man who holds aloof from public life not as "quiet" but as useless; we decide or debate, carefully and in person, all matters of policy, holding, not that words and deeds go ill together, but that acts are foredoomed to failure when undertaken undiscussed.[1]

It is no new thing in the United States for the governed to take an active hand in the governing, but the technique has only been sporadically extended to and therefore is, in a large measure, undeveloped in the field of administrative regulation. If experts and those affected can appear before and advise legislative committees in the creation and formation of public ordinances, obviously the same practice can be extended to administrative agencies in connection with the adoption and promulgation of their rules and regulations. Indeed, given appropriate opportunity, the better trained and the more experienced of those to be regulated should be able to bring to the regulating agency a better understanding of their mutual problems with resulting efficient governmental administration and a minimum of interference with business and private affairs. At any rate the minimum accomplishment will be the avoidance of the mistake so often made by those who seek the aid of government with too little regard for its or their responsibilities in connection with such aid, for: "By pooling our difficulties, we may at least avoid the failures which come from conceiving the problems of government to be simpler than they are."[2] The framers of the plan for the Civil Air Regulations may well have used the boast of Pericles and the thought of Mr. Justice Frankfurter for their pattern. In any event it was the choice of wisdom; perhaps more obvious to this writer than any other person because he joined the enterprise after the plan had been laid and approved and the preliminary work done.[3]

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* Editor-in-Chief, JOURNAL OF AIR LAW AND COMMERCE.

1. Quoted in Zimmern, The Greek Commonwealth (1915), p. 202.
2. Felix Frankfurter, The Public and Its Government (1931), p. 2.
3. Colonel John H. Wigmore and Fred D. Fagg, Jr., were originally employed by Secretary of Commerce Daniel C. Roper and Assistant Secretary of

It is also interesting that the two consulting experts chosen to devise the plan were lawyers. True it is they were rich in air law experience and one of them an old, though inactive, pilot. Nevertheless, the full extension of the Athenian technique to the aeronautics field must have come in major degree from the legal background. "It is significant that the first case in which the Supreme Court of the United States had to pass on a question of constitutionality involved a power by Congress to devolve administrative duties upon the federal judges."[4] The rule making power of the Supreme Court has been uniformly exercised by conference with the Attorney General and his Washington staff, by conference of and recommendations from the circuit and district judges and district attorneys, by recommendations from a lawyers' committee of varied experience and wide geographical distribution, and by the conference and recommendation method amongst the bar associations. The foregoing is not only historical, but as modern as the architecture of the 1938 federal rules of court. This method has been exercised so long and so frequently, not only by the federal courts but also by the state and other inferior courts, that the administrative side of such a tribunal would be seriously discredited if any other were used. Only the litigants have not been called in personally, but certainly they—past, present, future and possible—have had their day in court through counsel, often without fee and more often of better caliber than would be employed otherwise. Furthermore the proceedings of our courts have a large public attendance and scrutiny by persons in all walks of life and by many who have little, if any, litigation. This is exclusive of jurors and witnesses, all laymen except in rare instances. In short, the citizen has had and does have a higher participation in the juridical process than in any other governmental activity.

Hence the logic of the choice of the two planners of the Civil Air Regulations. Of course this takes full account of the high quality of the aeronautical experts of the old Bureau of Air Commerce, now Civil Aeronautics Authority, similar technicians in the aviation industry, and the way-above-the-average intelligence of those who participate in flying generally. It recognizes the excellence of the approach of the former heads and staffs of the Aeronautics Branch[5] and of the Bureau of Air Commerce, and that the

Commerce J. Monroe Johnson to plan and write the Civil Air Regulations. When Mr. Fagg became Director of Air Commerce on March 1, 1937, Mr. Knotts was employed in his stead.

4. Report of Roscoe Pound Committee on Administrative Law, 1938 Advance Program of American Bar Association, p. 155.

5. Under the Air Commerce Act of 1926 and prior to 1934 the federal governmental agency was known as Department of Commerce, Aeronautics

old air regulations 'grew up like Topsy' simply because the seven league boots of aviation achievement made it so and because no regulatory scheme, unless punitive, should attempt to spring up full grown.

II. Method of Preparing Regulations

Preliminary Drafts. "A grant of power or authority bears with it a privilege to act but only within a given frame of reference. Analysis of the * * * power will expose what limitations are implicit in the grant of such powers as well as what rights are derivable from them."[6] In order to be sure of a mutual recognition of the limitations the consulting experts first met with the Washington technical staff of the Bureau of Air Commerce and large numbers of the field personnel, including each of the supervising inspectors. One of the objections to the old regulations was that they violated the limits of the Air Commerce Act and were too often a mere determination of what should be done for or to aviation without due respect to the "frame of reference." Therefore days were spent by the technical staff and the legal experts in a joint combing of the basic legislation, having in mind at all times the regulations of the past and those proposed for the future. The aviation technicians gave the consulting experts their best judgment as to good flying practices, and the latter in turn gave form to the expressions of the former and kept them within the bounds of the legislative power delegated by Congress. Thus the preliminary drafts—and there were many of them for each chapter—were drawn and refined.

Distribution, Criticism and Revisions. The next step was the distribution of these drafts to all of the Bureau of Air Commerce personnel, Washington and field, who had anything to do with the carrying out of the regulations. Criticism and comments were asked and much that was helpful was obtained. Again the drafts were revised and this time sent to persons outside Bureau personnel for criticism and comment. This distribution included the National Aeronautic Association, Aero Chamber of Commerce, Aircraft Manufacturers Association, Air Transport Association, Air Line Pilots Association, TWA Pilots Association, Private Fliers Association, National Association of State Aviation Officials, Sportsman Pilots Association, each of the approved flying and mechanic schools, and many other groups and individuals. The endeavor was to reach a cross section of every phase of aeronautics. Many, many

Branch, and it was headed successively by Assistant Secretaries of Commerce for Aeronautics William P. MacCracken, Jr., and Clarence M. Young.

6. *James M. Landis*, The Administrative Process (1938) p. 48.

individual requests for various drafts were filled. Indeed, it was no uncommon thing for from 200 to 400 copies of each draft to be sent out. Typical was a distribution (with covering letter of explanation) on June 11, 1937, to more than one hundred individual aircraft manufacturers of drafts of Chapters 00—Aircraft Registration Certificate, 01—Aircraft Certificates, 02—Aircraft Identification Mark, and 04—Airplane Airworthiness.

Conferences and Final Revisions. Following the foregoing procedure conferences were held with various representatives and experts from the outside groups. In fact, a special effort was made to have such a conference with each of these groups. Details of these meetings will be given a little later, but here it must be said to the credit of those who participated that government has seldom if ever had such unselfish and painstaking cooperation. Each one of these meetings raised one or more problems with corresponding constructive suggestions which the draftsmen had overlooked or had not developed. Following these meetings the drafts were again revised and in turn submitted to the outside experts. When a second set of conferences was desired by these outside experts such conferences were held. Then, with the additional resulting suggestions in mind, the drafts were finally revised.

Approval and Issuance. The procedure was then to present them to the Director of Air Commerce for his approval and forwarding to the Solicitor of the Department of Commerce. When the Solicitor had scrutinized the same and effect had been given to his criticism the regulations were approved by him and in turn forwarded to the Assistant Secretary of Commerce for Aeronautics. The Assistant Secretary then approved the regulations and forwarded them to the Secretary of Commerce, who on or about October 1, 1937, issued the same to be effective November 1, 1937.

III. BAC Editorial Committee

The Members. Mention has been made heretofore of the use of the Bureau of Air Commerce technicians in producing and revising the various drafts of the regulations. Unlimited use of such personnel was authorized by the Secretary of Commerce and the Director of Air Commerce and full advantage was taken of such authorization. However, the utmost in logical development was desired and therefore there was created an editorial committee which functioned throughout the drafting and evolution of the regulations, both the November 1, 1937, and the May 31, 1938 editions. In addition to the consulting experts it was composed of Major R. W.

Schroeder,[7] Assistant Director of Air Commerce and former Chief of Air Line Inspection Service, Bureau of Air Commerce; Bryan M. Jacobs, who succeeded Major Schroeder in both of his capacities and who is now Director of the Bureau of Safety Regulation, Civil Aeronautics Authority; L. V. Kerber,[8] for many years Chief, Aircraft Airworthiness Section, Bureau of Air Commerce and Civil Aeronautics Authority; Richard S. Boutelle and A. S. Koch, respectively, Chief and Assistant Chief of the General Inspection Section, Bureau of Air Commerce and now, respectively, Assistant Director, Bureau of Safety Regulation, and Chief, General Inspection Section, Civil Aeronautics Authority; Earl F. Ward, Chief, Airways Operation Division, Bureau of Air Commerce and Civil Aeronautics Authority; Robert R. Reining, Chief, Aircraft Registration Section, Bureau of Air Commerce, and now Chief, Records Division, Civil Aeronautics Authority; George W. Vest, Chief, Regulation and Enforcement Division, Bureau of Air Commerce and Civil Aeronautics Authority; and Dr. E. S. Adams, Chief, Medical Section, Bureau of Air Commerce and Civil Aeronautics Authority.

Just before this work was begun Mr. Jacobs had been for many years an active manufacturing and airline inspector in the field. Mr. Boutelle had been the State Coordinator of the Bureau of Air Commerce. Mr. Vest had been the supervising inspector at Chicago and Mr. Koch had been in charge of the general inspection office at St. Louis. Dr. Adams gave us the aero medical knowledge of a practical flyer, a former Army medico, a private practitioner and the chief medical officer and one of the organizers of the present Chinese air force. Although these men functioned continuously, their work was supplemented and greatly aided from time to time by other Bureau personnel, namely, Jack Gray and F. R. Shanley of the Aircraft Airworthiness Section; Richard C. Gazley, John Easton and James C. Edgerton of the Safety and Planning Division (now Technical Development Division); Reeder Nichols, Chief, Radio Section; Fred L. Smith, G. A. Gilbert and Eugene Sibley of the Airways Operation Division, and Leonard Jurden and J. S. Marriott, then chief supervising inspector and now regional supervisors at Kansas City and Los Angeles, respectively. Unfortunately all participating in large measure are not mentioned for the obvious reason of space limitation. Even so our respects must be paid to Floyd Brinkley, now Chief, Information Division, Civil Aeronautics Authority, for his indispensable editorial work and to

7. Major Schroeder resigned from the Bureau of Air Commerce in May, 1937, to become Vice President in charge of Operations of United Air Lines. He is now Vice President in charge of Safety.

8. Mr. Kerber resigned from the Civil Aeronautics Authority in December of 1938 and is now with Lockheed Aircraft Corporation.

Samuel E. Gates, now Chief, International Division, Civil Aeronautics Authority, for his indefatigable liaison with the Solicitor and the Federal Register in connection with the May 31, 1938, revision.

The Viewpoint. These men gave to the consulting experts their own best advice not only from their own experience but from that obtained from the outside experts and the conferences with the industry. Their background gave assurance of real consideration of every phase of aviation. They gave much that was valuable in the way of draftsmanship, and if the Civil Air Regulations are in any wise subject to technical objection or from time to time seem not as clear as might be, the fault is entirely with the consulting experts who did the final drafting. Whatever the result, this writer is very confident that great strides were made in producing rules of flying conduct that *promote* as well as *regulate*. This high goal was even applied to the sanctions necessarily inserted for securing conformity to law. The view was these were needed for the minority only, and that the rules proper could and should have such virtue that they would be morally obligatory upon the vast majority of those engaging in aeronautics. The test was that of the late Justice Cardozo: "It is true, I think, today in every department of law that the social value of a rule has become a test of growing power and importance,"[9] and the members of the editorial committee and the other advisors really helped to bring the application of this test to its fruition. Furthermore, no one then or now pretends that the job was perfect. Indeed, it was clearly recognized that the rules were made to be changed, and that such had to be the case to keep pace with the needs of the fastest growing transportation in America.

IV. Record of Conferences

February, 1937. The accidents of the winter of 1936-37 were such that a safety conference was held in Washington, D. C., February 4-6, 1937, attended by every branch of aeronautics. On Sunday, February 7th, Colonel J. Monroe Johnson, Assistant Secretary of Commerce, called into conference the representatives of the airlines and promised early drafts of and a conference on the chapters of the Civil Air Regulations chiefly affecting scheduled air transport. They were CAR 40—Scheduled Airline Certification and 61—Scheduled Airline Rules.

9. *Benjamin N. Cardozo,* The Nature of the Judicial Process (9th ed. 1937) p. 73.

This conference was held in Chicago February 23-25, 1937, with 27 members of the executive and operating personnel[10] of 11 airlines[11] of the United States headed by their chairman, Ralph S. Damon, Vice President in Charge of Operations, American Airlines; Colonel Edgar S. Gorrell and Fowler W. Barker, respectively President and Secretary of the Air Transport Association; David L. Behncke, President, Air Line Pilots Association, and Berniece Bergender of the same organization; Otis Bryan, President, TWA Pilots Association, and W. P. Scruggs of the same organization; and Reed Chambers representing the aviation insurance underwriters. At the special executive session held for active pilots 12 active airline pilots and 1 member of the Air Line Mechanics Association were present in addition to those pilots already mentioned. The executive session of the pilots was to assure expression free from any real or fancied airline domination. For like reason their names and companies are not footnoted.

The good results of this meeting were too numerous to mention. Probably the greatest was the assurance of the future cooperation of both pilots and airlines in perfecting not only CAR 40 and 61, but CAR 21—Airline Pilots, 26—Airport Control Tower Operators, and 27—Airline Dispatchers. The airlines were most favorable to CAR 26 and the pilots to CAR 21 and 27. The truth is the recommendation of the airline pilots at this meeting brought about the divorcement of their activities from CAR 20—Pilots and the creation of CAR 21. Other features of the meeting were the insistance of the pilots for a more rigid examination for airline pilots and for higher minimums at both scheduled and alternate airports, and the reiterated contention of the airlines that the regulations should be more specific and the expression "as deemed necessary by the Secretary" less used.

April, 1937. During this month a meeting was had with representatives of glider and soaring pilots which set the stage for an entirely new set of glider pilots specifications which appeared in the May 31, 1938, revision of the Civil Air Regulations. It brought them into line with the higher international standards.[12] Also plans were laid for glider and soaring plane manuals. The conferees

10. Paul E. Richter, L. C. Fritz, Milton Van Slyck, Ralph S. Damon, Hugh L. Smith, G. K. Griffin, H. E. Pieiemeir, S. L. Shannon, George E. Gardner, Captain E. V. Rickenbacker, Leo C. Allen, Paul M. Norman, Frank E. Caldwell, C. V. O'Callaghan, C. Bedell Monro, L. P. Arnold, J. H. Neale, B. E. Braun, F. Whittemore, K. R. Ferguson, Vernon L. Dorrell, Edward Campbell, Allan A. Barrie, John Rhodes, D. B. Collyer, H. L. Kirby, W. W. Braznell.

11. T.W.A., American Airlines, Eastern Air Lines, United Air Lines, Pennsylvania-Central Airlines, Chicago and Southern Air Lines, Northwest Airlines, Hanford Airlines, Grand Canyon Airlines, Western Air Express, Atlantic and Gulf Coast.

12. CAR 20.15 through 20.177.

were the very practical Richard duPont and Lewin B. Barringer, respectively President and General Manager of the Soaring Society of America, and William R. Enyart, Secretary of the National Aeronautic Association. Mr. duPont and Mr. Barringer are each American record holders.

The other April meeting was that very important one with the Private Fliers Association represented by Dr. Irving Langmuir, Past President, A. R. Stevenson, Jr., President, Grove Webster, Executive Vice-President, and Dr. John Miller, member of the Board of Governors, all hard-headed enthusiastic private fliers, owners of aircraft and users of their planes both for pleasure and in connection with their businesses,—and only one such business had a direct connection with aviation. They brought to this Washington conference not only a critical examination of CAR 20—Pilots, but a platform of concrete suggestions which they afterwards submitted in writing under date of April 26, 1937. To them the CAR is indebted for a more rigid and a minimum student pilot training program, the consequent reduction of 50 to 35 solo flying hours for a private pilot certificate, and the further classification of pilots as to airplane type, weight and engine. Their strong plea for a separate classification of the private and the commercial pilot on an economic basis was highly persuasive, but could not be granted because the Air Commerce Act limited such regulations to safety only,—and safety alone provided no such division.

It is no wonder so much was accomplished. Grove Webster was everybody's selection for, and is, the Chief of the Private Flying Development Division of the Civil Aeronautics Authority. Dr. Irving Langmuir, the chief author of the plan presented, is a Nobel prize winner and has such varied accomplishments as the debunking of the botfly from its legendary speed of 818 to its actual speed of 25 miles per hour[13] and the basic research for the new invisible glass.[14] Mr. Stevenson is one of the stand-bys of General Electric and Mr. Miller is one of Connecticut's leading specialists. These men very graciously agreed to comment on the proposed final drafts. Presumably they did and had no criticism for Mr. Stevenson under date of June 14, 1937, acknowledged receipt of such drafts of CAR 20 and nothing was heard until after the whole CAR was issued on November 1, 1937, and a general revision was in progress.

May, 1937. Under the auspices of the National Association of State Aviation Officials and at the call of its then President Gill Robb Wilson a meeting was held at St. Louis on May 28, 1937, to

13. *Time*, March 21, 1938, p. 44, 46.
14. *Time*, January 9, 1939, p. 33.

consider the new regulations dealing with aircraft, airlines, flying schools, air traffic rules and pilots.[15] There was official representation from 15 states and, because the International Aerobatics and St. Louis Air Races were then in progress, many individual pilots and other persons from the aircraft industry attended or had others express their views. Oliver L. Parks, L. M. Churbuck and Casey Jones, heads of three of our largest and best air schools, held a separate meeting to specially consider CAR 50—Flying Schools. Again the suggestions were many and good, but outstanding were one to provide for an instructor rating for a properly qualified private pilot to instruct not for hire and another to make Service aero-physical examinations available for all pilots except students. This latter provision for the benefit of members of the Air Corps Reserve and the National Guard Air Service in their civilian flying was not new, but the demand for it at St. Louis was the genesis of an arrangement whereby the Army and Navy has furnished full and complete certified copies of such medical examinations to Air Commerce and its successor Civil Aeronautics Authority, and thereby each has been able to do its full duty. Incidentally, the conferences between the Services and Air Commerce, which produced this result, laid the foundation for future and highly beneficial exchanges not only with respect to regulations but such other important matters as the training of Air Commerce inspectors on 4-motored aircraft.

July, 1937. On July 9th and 10th the airline operators committee[16] met in Washington with the editorial committee of the Bureau. CAR 21, 26, 27, 40 and 61, as well as the airline portion of CAR 04, were discussed for final form. These mutual efforts developed a system of airline regulation which must have played an important part in the marked increase in safety or air transport during 1938, the first full year of operation under the CAR. Following the meeting the chairman of the operators committee sent this word to the Bureau editorial committee: "It was the opinion of the members of the Operators Committee that you should have a vote of thanks for the hard work and intelligent understanding of the problems which you have applied in the codification of the new draft of the regulations." About the same time came the announcement of a permanent arrangement for the operators committee to submit each six months, and oftener if need be, recommendations

15. 8 JOURNAL OF AIR LAW 481.
16. Chairman, Ralph S. Damon, American Airlines; Larry Fritz, TWA; Sid Shannon and George Gardner, Eastern Air Lines; Major R. W. Schroeder, United Air Lines; V. A. Dorrell, Hanford Airlines; Jack Neal, Pennsylvania-Central Airlines; and Fowler W. Barker, Air Transport Association. Present also were radio experts and technicians Cunningham and Martin of United Air Lines and R. O. Smith of Pennsylvania-Central Airlines.

to the Bureau for necessary changes in regulations dictated by experience and the advancement of the art of flying.

August, 1937. David L. Behncke, President of the Air Line Pilots Association, under date of June 15, 1937, submitted the views of his organization. These were based upon the answers to a questionnaire sent all of his regional councils. This document was used in preparing the drafts for the July 9th and 10th meeting outlined above. It was a most comprehensive piece of work and Air Commerce will ever be in debt to the Air Line Pilots for it. On August 7th Mr. Behncke and Mr. Hamilton of his organization met in Washington with the Bureau editorial committee for final conference. There CAR 21, 26, 27, 40 and 61 were reserved for discussion, but Mr. Behncke and Mr. Hamilton largely confined their remarks to a few well-directed suggestions for CAR 21 and offered no changes for the other chapters.

On August 17th a meeting was held in Washington with the Engineering Conference of the Aeronautical Chamber of Commerce of America as a final follow-up of the letter and drafts of CAR 00, 01, 02 and 04 sent out to all manufacturers on June 11th. The chief value of this meeting was the permanent arrangement for an annual meeting between the manufacturers and the Bureau of Air Commerce to consider regulations revisions, not of course precluding emergency changes in the interim. Such an annual meeting was held in Washington during April, 1938.

July, August and September, 1937. On July 7, 1937, the Airways Operation Advisory Committee first met and organized. It met many times during July, August and September and in the heat of an unusually severe Washington summer brought forth CAR 60 —Air Traffic Rules. In addition to the Bureau editorial committee, headed in this enterprise by Earl F. Ward, Chief, Airways Operation Division, the whole committee had as members James E. Webb, National Aeronautic Association; Charles A. Masson, National Association of State Aviation Officials; Paul Goldsborough, President, Aeronautical Radio, Inc.; Commander R. E. Davison, Bureau of Aeronautics, Navy Department; David L. Behncke, President, Air Line Pilots Association; Lieut. G. H. Bowerman, Aviation Division, U. S. Coast Guard; Major Wm. B. Souza, Office of Chief of Air Corps, U. S. Navy; S. S. Kenworthy, American Municipal Association; Fowler W. Barker, Secretary, Air Transport Association; Grove Webster, Private Fliers Association; Dr. C. C. Clark, U. S. Weather Bureau; Jerome Lederer, Aero Insurance Underwriters; and C. H. Warrington, Sportsman Pilot Association. During the

course of the meetings some 28 other individuals[17] actively participated in behalf of their widely varied aviation interests.

The fruits were a reduction of the width of the civil airways from 50 to 20 miles, a sound dividing line between contact and instrument flying, a genuine recognition of the private pilot's use of the civil airways, and the beginning of a system whereby the high collision hazard and slaughter of the highway can be avoided in the air. In addition the Airways Operation Advisory Committee was made permanent and subject to call. It functioned in connection with the May 31, 1938, revision of the CAR, and it has met as late as December 5, 1938.

V. Revision of May 31, 1938

By March and April of 1938 sufficient experience had been had to show the necessity of certain revisions. Also the functioning of a permanent system of aviation information interchange, described earlier, was under way. Meetings had been held with the manufacturers committee, the operators committee of the airlines, the schools, the private fliers and others. An airport conference, national in scope, had been organized and held at the Bureau of Air Commerce; and it had created a permanent airport committee which has done much valuable work under A. B. McMullen, Chief, Airport Section, Bureau of Air Commerce and Civil Aeronautics Authority. In addition it was necessary to have a complete revised draft of the Civil Air Regulations to meet the deadline of June 1st of the Code of Federal Regulations. Therefore the complete revision of May 31, 1938, was undertaken and promulgated.

Its major changes for pilots concerned simplification of the requirements as to log books, dual controls and demonstration of aircraft, and the classification and utilization of military experience and skill for obtaining civil pilot, instrument and instructor ratings. As to airline pilots the chief changes were a recognition of the special requirements for pilots of water aircraft and the modification of test flight maneuvers with large ships. The airline chapters of CAR 40 and 61 were chiefly revised by adding new regulations with respect to deicers, alternate airports, fuel dumping and con-

17. General Oscar Westover, Chief of the Air Corps, War Dept.; Pres. Charles F. Horner, N.A.A.; Lt. Comdr. A. O. Rule, Navy Dept.; Maj. Wallace G. Smith, Air Corps, War Dept.; Maj. Wm. B. Souza, Air Corps, War Dept.; Maj. Clyde V. Finter, Air Corps, War Dept.; Maj. Fred C. Nelson, Air Corps, War Dept.; C. B. Olsen, U. S. Coast Guard; Mr. Edward G. Hamilton, A.L.P.A.; Fred L. Smith, N.A.A.; Cyril C. Thompson, United Air Lines; B. E. Cole, Airlines Charter Service; O. J. Whitney, O. J. Whitney, Inc.; F. E. Caldwell, United Air Lines; W. J. Addams, United Air Lines; Hugh L. Smith, American Airlines; George Mace, American Airlines; Roy D. Mitchell, American Airlines; Earl D. Mallery, American Municipal Association, George M. McCabe, American Airlines; John A. Collings, T.W.A.; H. H. Gallup, T.W.A.; L. G. Fritz, T.W.A.; Louis Inwood, Interstate Commerce Commission (now Air Safety Board, C.A.A.); H. O. Young, Canadian Colonial Airways, Ltd.; Walter C. Clayton, Aeronautical Chamber of Commerce; Claude F. King, Cleveland Airport; D. M. Little, U. S. Weather Bureau.

tinued flight with certain instruments out of repair. These chapters were in some respects made more specific here and there at the request of the airlines and the editorial committee of the Bureau then commented, as it had before, that such detailed rules would rise to plague the persons who requested them. Of course those to be regulated are always in the dilemma of having to find the proper place between broad general powers in the regulating agency and specific, detailed regulations which cannot possibly fit all instances.

The air traffic rules were revised by the addition of the geographical designation of all the airways, the traffic areas, the control zones, the radio fixes and the restricted areas, so that for the first time a pilot was able to find within one document all he needs to know with reference to a given flight. Even so CAR 60 now only contains 50 pages and since the new CAR 20—Pilots contains but 22 pages, no pilot need be burdened by more than these two documents with a total reading matter of 72 pages. The bulk of the regulations is gone. For the May 31st revision the first copies contained all of the CAR Parts bound together, but this was because of the requirements of the Code of Federal Regulations. Now the several Parts have been separated and there is no more need for carrying the whole CAR than there would be to encumber your cockpit on each flight with all the aeronautical charts of the United States. On the other hand, it is most unfortunate that, due to first-things-first, ACM 20 (now CAAM 20) was not completed by Air Commerce and has not been to date. It was one of the Manuals planned at the beginning of the CAR and its purpose is to interpret CAR 20 and put it in narrative form, with a special division for the private flier.

On August 20, 1938, the Civil Aeronautics Authority adopted and promulgated the May 31, 1938, CAR with certain amendments as to substance and nomenclature made necessary by the Civil Aeronautics Act of 1938. Since then a new CAR 24—Mechanics has been put out to meet moving conditions, and it was evolved in the manner of its prototype. Numerous minor amendments to CAR 04—Airplane Airworthiness, have been made in like manner. CAR 20.55 has been amended to reduce Class 1 aircraft from 1500 to 1300 pounds to give proper status to the new 50-horse power light aircraft. Times and situations will bring many other changes, but if there is through it all the same cooperative planning the original CAR had, aviation will be well served.

THE CIVIL AIR REGULATIONS AND THE CODE OF FEDERAL REGULATIONS

HESSEL E. YNTEMA*

As the preceding papers in this symposium indicate, the Civil Air Regulations, which were issued by the Secretary of Commerce on May 31, 1938, and, subject to certain amendments, were readopted by the Civil Aeronautics Authority on August 20, 1938, constitute a thoroughly scientific and, from the viewpoint of the technique of codification, an unusually instructive achievement. What is perhaps more important is that these Regulations have established a plan which provides for the effective development of national regulation in an area of strategic and increasing importance. From a more general point of view, it may be remarked that the circumstances which antedated these Regulations find their parallels in other branches of the so-called administrative law—faulty methods of publication, relative inaccessibility to the public of the existing materials, and, in recent years, a rapid increase of the scope of regulation requiring a vastly increased mass of rules and documents. Long since, the general enactments of the States and of the Congress have been reduced to codified form; more recently, the American Law Institute has undertaken to clarify and simplify the Common Law in a restatement; at the present time, owing to the rapidly increasing volume, significance, and the unsystematic publication of administrative regulations, there has arisen an imperative need to consolidate, revise, and render more readily accessible the materials of so-called administrative law. Without such efforts as are represented by the Civil Air Regulations and similar intelligently devised plans of codification in specific areas of administration, the citizen affected by the applicable regulations is bound by requirements difficult to ascertain.

For the purpose of Federal administration, it is obvious that the primary work involved in the revision and codification of the Federal administrative law can best be accomplished by the several agencies which administer and therefore should most competently understand the regulations for which they are responsible. On this account, it is to be desired that such efforts as are represented by the Civil Air Regulations and analogous enterprises undertaken in

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other agencies should be carried forward and extended in further directions. But it should also be obvious from the public viewpoint that such consolidations of the regulations of individual bureaus and agencies need to be assembled and published in a comprehensive uniform plan for the codification of Federal regulations. This need has been recognized by the Act of June 19, 1937, amending the Federal Register Act and authorizing the codification of all documents issued by the Federal agencies which are of general applicability and affect the public. Indirectly, by requiring the several agencies to prepare codifications for this purpose, this enactment has given a salutary stimulus to the systematization and revision of the existing materials, and, as the Act contemplates periodic revisions every five years, it may be expected to have such effect, even more conspicuously, in the future.

Although the interesting historical background of this legislation is scarcely appropriate to the present discussion,[1] there are certain general features of the projected Code of Federal Regulations now in the process of editing and publication, under authority of the above Act, to which attention may be directed. In brief the pertinent provisions of the Act of June 19, 1937, in question, are as follows. First, it is required that, on July 1, 1938, each agency of the government shall have prepared and shall file with the Administration Committee of the Federal Register a complete codification of its documents effective June 1, 1938. Secondly, it is prescribed that each such codification shall include—

> "All documents which, in the opinion of the agency, have general applicability and legal effect and which have been issued or promulgated by such agency and are in force and effect and relied upon by the agency as authority for, or invoked or used by it in the discharge of, any of its functions or activities."

Thirdly, the Act establishes a Codification Board composed of the Director of the Federal Register Division as chairman ex officio, three attorneys of the Department of Justice, and two attorneys of the Federal Register, to supervise and coordinate the form, style, arrangement, and indexing of the codifications. Finally, it is provided that the complete codification, upon publication as authorized by the President, shall be prima facie evidence of the text of the documents included and of the fact that they are in effect on and, subject to subsequent amendments published in the Federal Register, after the date of publication. These provisions are supplemented

1. For a resume of the details the recent article by *J. H. Ronald*, a member of the Codification Board, "Publication of Federal Administration Legislation," 7 George Washington Law Review, 52 ff. may be consulted.

by regulations which were approved by the President on November 10, 1937.

Of the many and varied issues which have presented themselves to the Codification Board since it commenced its work on December 1, 1937, with the writer as director, a fundamental and, in certain respects, a most difficult question has involved the arrangement of the projected Code. Under the regulations of November 10, 1937, titles were to be assigned in order, first to the President, then to the Departments according to their seniority, and thereafter to the independent agencies in alphabetical sequence. This plan, albeit eminently suitable for the preparation of their codifications by the various agencies, involves certain primary difficulties when regarded as a basis for a more or less permanent scheme for the codification of the Federal administrative documents. In the first place, it unnecessarily separates related materials from different agencies; in the second place, the alphabetical ordination of independent agencies, while avoiding possible recriminations on account of claims to priority, makes no systematic provision for such new agencies as may appear in the future or even for regulations issued by agencies which at present have no materials to be included in the Code. Indeed, even a change in the name of an agency would render the alphabetical order pro tanto obsolete. Consequently, attentive and at times argumentative consideration has been given over several months to various alternatives: to a plan for disposing the materials under an agency classification but in the order of seniority, a plan which avoids the second but not the first objection to the initial plan; to a functional arrangement which, however logically desirable, seems quite impracticable on account of the absence of any accepted or clearly defined classification of governmental functions and the extraordinary criss-crossing of Federal activities among the agencies when regarded from a functional point of view.

In the result, a compromise plan has been adopted, which for the most part parallels the classification of titles in the United States Code. Under this familiar arrangement, titles are assigned according to subject matter in alphabetical order, the particular titles being selected after exhaustive study of the relevant statutes and the codifications submitted, supplemented by consultation with the agencies concerned. It has not, however, appeared possible or desirable to follow the plan of the United States Code literally. In the first place, chapters are assigned within each title to the bureaus and agencies concerned with the subject matter, so as to respect the identity of the regulations of the various agencies and to facilitate the publication of their respective codifications as units. In the

second place, certain amendments have been made in the United States Code arrangement, which have been necessitated in part by the lack of correspondence in certain subjects between the distribution of statutory materials and the regulations, and in part by developments since the arrangement in question was conceived. For instance, in the Code of Federal Regulations, the Civil Air Regulations owing to their volume and significance will appear under Title 14, Civil Aviation, whereas in the United States Code the corresponding legislation appears under Title 49, Transportation, where it is somewhat buried within the mass of statutes relating to interstate commerce there codified, the bulk of which is administered by the Interstate Commerce Commission. It is obviously difficult to anticipate with any degree of assurance the probable course of future Federal administrative enterprise, but it is hoped that the arrangement which has been adopted, which for the most part corresponds to that of the United States Code, will recommend itself as a convenient solution and will admit of a reasonable degree of future expansion.

Another and a most interesting series of questions has arisen with respect to the construction to be given to the Act of June 19, 1937, in determining what documents are to be included in the codification. Under the Act the respective agencies are, quite properly, invested with the responsibility of deciding which of their documents fall within the Act, but the Codification Board has been frequently called upon to consult with agency representatives in borderline cases. Without attempting to define in detail the rather fine line which has had to be set in certain instances, it may be briefly stated that the following types of documents will not be found in the Code of Federal Regulations. (1) Ephemeral documents which have merely temporary application. (2) Intra-administrative documents, which apply to Federal officials in their capacity as such. An exception to this rule has been made in the case of the general civil service regulations on account of the widespread public interest in this subject matter. (3) Merely informative and non-regulatory material. (4) Documents of specific and not general applicability, e. g., orders in individual cases, appointments of named individuals, etc. (5) Regulations of the District of Columbia Government and of various territorial governments, which do not constitute Federal agencies within the meaning of the Act. And, of course, (6) documents which had become obsolete on June 1, 1938. In addition, (7) the great mass of Executive orders and similar documents which merely contain land grants are excluded, partly for the reason that the publication of these documents would be

misleading as a statement of the status of the title to public lands and partly since it would be an apparent waste of public funds to publish the thousands of such unnumbered Executive orders in the present codification. In certain types of cases, however, tabulations of all Executive orders. Proclamations and analogous documents relating to particular classes of reservations, e. g., the national parks and the military reservations, are to be included, so as to provide a summary index of the pertinent documents. With this exception, however, particular study has been given to the Executive orders, which have been in a peculiarly unsatisfactory situation so far as their accessibility is concerned, and the Code will contain a complete codification of all such orders containing effective regulations. Finally, (8) the documents of legislative and judicial agencies are not included, except that the copyright rules, which are issued by an office in the Library of Congress, are to be included through the cooperation of those concerned.

There remain as the content of the Code of Federal Regulations, documents of general application issued by the administrative agencies which may be regarded for the most part as relatively permasent in type. In the writer's judgment, the most important lacunae are, first, the rules issued by the Judicial Department, which need to be compiled and for which an appropriate title is provided in the projected Code; second, a rather extensive body of intra-administrative orders and regulations, which should, in the public interest, be available for public consideration and may well some day form the content of an administrative code; and, third, the enormous mass of individual decisions and specific memoranda which at some time in the future could be profitably consolidated in the form of annotations to the Code. All these items have been, and most wisely, excluded from the present codification, since at this initial stage the important object has been to lay the basis for an effective plan to which such additions can later be made, if and when desired.

A further problem closely related to the arrangement of the materials has presented itself with respect to the numbering of the Code. Two factors have conditioned the solution which has been reached. The first is the rudimentary desideratum that a simple and accurate mode of reference to the Code should be chosen. The second is the quite reasonable desire on the part of the officials concerned that existing systems of numbering should be retained, particularly in instances where such systems have been widely employed or have acquired a mnemonic significance. This latter requirement has caused difficulty in view of the variety of numbering systems to be found in the several regulations and perforce precluded the

usual practice of assigning section numbers de novo in a code. After an intensive study of the problem, involving a survey of the numbering systems to be found in various State codifications as well as in the Federal documents themselves, a system has been devised, which satisfies the two requirements noted, is relatively simple, and at the same time has the advantage of providing readily for amendment and expansion in the future.

In brief, in the system adopted, part numbers are assigned serially within each title (though not necessarily in sequence), and the sections are similarly numbered within each part. Each section number is composed, as in the Civil Air Regulations, of the part number followed by a decimal and the section number within the part. This scheme permits a citation to the Code in the form 15 CFR 10.151, in which the numeral to the right of the decimal point may, if the agency so desires, be identical with the section, article, paragraph, or rule number in the original document. Those who are familiar with the Wisconsin Code or the Civil Air Regulations will recognize the principle as a very simple application of the so-called decimal system. Although the plan was independently arrived at, chiefly as a result of a conference which the writer enjoyed with representatives of the Bureau of Internal Revenue, it incorporates certain details which were suggested by study of the Civil Air Regulations. As a part of a plan for the progressive codification of Federal administrative documents, it sacrifices a minimum of uniformity for the advantages of simplicity and flexibility and the desire of the agencies to retain a limited amount of control over the internal numbering of their materials.

In the belief that the format of the Code of Federal Regulations would in a degree condition its use by the public and by the government agencies, an effort has been made to obtain a representative opinion as to how the Code should be printed. After consultation with all the agencies concerned, it was apparent that a relatively small and handy volume printed in readable type is distinctly preferred, as contrasted with the formidable tomes too often set in small type, in which codes are not infrequently incorporated. Consequently, the Government Printing Office, since receiving an adequate appropriation for the Code, has worked out a dignified style in ten point type in the document measure familiar as a vehicle for regulatory materials. At the generous suggestion of Dean Fagg, then director of the Bureau of Air Commerce, the Civil Air Regulations were employed as the "guinea pig" to settle the meticulous details of style, and the plates which were made for the Bureau for this purpose are also to be used for title 14 of the Code. Since then,

other agencies have requested that arrangements be made so that they can secure reprints of their submissions in the Code style for their own distribution, with the result that substantial portions of the Code will be available in separates before the Code itself can be published. Meanwhile, the documents issued subsequent to June 1, 1938, are appearing in the Federal Register in a form supplementing the Code, and it is planned to publish the relevant matter in a volume which will constitute each year an annual supplement to the Code. Under this general plan, it is to be anticipated that the Code together with the Federal Register will shortly afford a comprehensive, uniform, and relatively economical system for the publication of public documents of which the Governmental agencies will increasingly avail themselves for their respective purposes.

One of the most gratifying aspects of the writer's adventitious connection with this enterprise has been the extensive and cooperative interest exhibited by the officials designated to consult with the Codification Board in its work. This interest has reinforced the conviction which has grown upon the writer that the compilation, revision, and proper publication of the Federal administrative documents, as exemplified in the study which has culminated in the Civil Air Regulations, is one of the most essential developments in the field of administrative law at the present time. It is important that such documents should be duly published in an appropriate, consistent, codified form, not merely in the interests of governmental economy, not only that the average citizen may more readily learn the regulations to which he is subjected, but also to submit them to studied scrutiny. One of the most useful results to be sought through such codification is that, as a result of such scrutiny, the form and content of administrative documents may be constantly improved and the trend toward an excess of "administrative flexibility" in certain fields of government discouraged.

LOSS PREVENTION IN NON-SCHEDULED CIVIL AVIATION*

JEROME LEDERER†

Aviation literature abounds with information about safety and the prevention of accidents. A tremendous amount of thought and activity is constantly devoted to the achievement of greater safety in the design and operation of airplanes. Accident records and statistics are zealously studied to determine where improvements can be made. But according to the former Bureau of Air Commerce and presumably the present Civil Aeronautics Authority, "An aircraft accident is an occurrence which takes place while an aircraft is being operated as such, as a result of which a person or persons are injured or killed or the aircraft receives appreciable or marked damage as a result of a failure of the aircraft structure or engine or through the forces of external contact, or through fire. For the purpose of analysis, an aircraft is considered as 'being operated as such' from the time the pilot or passengers board the aircraft with the intention of flight until such time as the pilot and passengers disembark from the aircraft upon completion of flight."

Without taking issue with the definition, everyone should recognize the fact that many losses occur outside this conception. Although these losses may not necessarily involve safety of passengers, of the public or of personnel, they do seriously affect aviation economics. For instance, when a hangar full of airplanes is destroyed by fire, no one's safety is necessarily involved, an accident as defined above has not occurred. But in one recent hangar fire, aviation suffered a loss of aircraft valued at $300,000 or the equivalent of thirty dollars for each civil airplane in this country! Insurance companies pay out an average of $2,000 per week for airplanes lost by fire alone. Furthermore, when a radio is stolen from an airplane, when a hangar collapses on airplanes stored in it, when a windstorm picks up a parked airplane and then hurls it down to crash or when a spectator stumbles over a tail wheel dolly and sprains his back, losses occur which may be far removed from safety as that word is usually understood in aviation. These losses

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in the end are paid for by airplane owners. Aeronautical Engineers therefore should be interested not only in the special study of safety to passengers and crew but also in the general study of loss prevention.

To cover completely the field of loss prevention would be impossible in a paper of this nature. These notes will be confined to some of the outstanding loss prevention problems in non-scheduled civil aviation such as windstorm, fire and particularly light airplane losses because light airplanes are involved in over 30% of all accidents while constituting about 22% of all civil airplanes. Furthermore, the light plane business is the fastest growing in aviation and therefore deserves special consideration right now. Moreover, what is true of the light airplane is also generally applicable to all airplanes.

Loss prevention or safety can be achieved in three ways: (1) By improvements in design, (2) by control or regulation or (3) by education or experience.

Regulation and education are governed largely by the design and characteristics of the airplane. For instance, if airplanes were designed that would not stall or spin, Federal regulation of spin testing or the education of student pilots in the danger of the stall/spin, would not be necessary. Certain physical standards like depth perception and the need for thorough education in landing technique result from the landing characteristics peculiar to the present conventional type of airplane. The need for regulation and safety education is therefore no compliment to the engineer. Regulation and education should vary inversely with improvements in design.

Pending improvements in design, the prevention of losses by wind and fire requires a minimum of regulation and a maximum of education. The number of airplanes lost by fire or windstorm last year is unknown because such losses, being outside the official definition of accidents, were not reported in the Bureau of Air Commerce analyses of accidents and no other agency is gathering the information. Perhaps the new Civil Aeronautics Authority will expand its activities to include all losses.

Light airplanes need not be caught in a storm to suffer damage by wind. Low wing loadings make them very susceptible to damage by winds of relatively small velocities. A light plane being operated by a novice in a wind of about 20 miles per hour (known as a moderate or fresh wind) or over is likely to be damaged seriously. Taxiing these planes in fresh winds requires skill and experience. Even winds less than 20 miles per hour are dangerous for light planes but proper instruction in the difficult taxiing problems pre-

sented by wind would eliminate most of the losses. Perhaps the tricycle undercarriage or some other change would enable safer operation latitude in operating them in strong winds. Until that time arises the pilot of a light airplane should be instructed to adopt the following suggestions:

1. Not to operate if wind conditions are very gusty or if wind is near or greater than 20 miles per hour. The light plane is then safest inside a hangar.
2. Check the wind forecasts before attempting any cross-country trips.
3. If caught in bad wind, land airplane a little faster than normal. Keep the tail up as long as possible.
4. Wait for help to roll the airplane to the hangar if taxiing is difficult.

Heavier airplanes usually suffer only in much stronger winds or in severe gusts and these losses often occur while the airplane is parked in the open.

Although winds may affect heavy airplanes less than light ones, fire has no favorites. Fire seems to occur in the strangest ways and often under peculiar circumstances. One plane was partly destroyed recently because the spark from a passing locomotive settled on the wing, setting it on fire. Another one was lost by an arc from an improperly installed radio antenna. Not long ago smoke was noticed coming from the bottom of a ship, with no one near it. Fire was found just behind the seat and baggage compartment. A few minutes before, the pilot with a cigarette in his mouth had reached in to get the log books. Evidently a spark had dropped from the cigarette through a space between the back of the seat and the door and had dropped down to the flammable fabric. In another case the wiring to the electric flares was only partly encased in a protective metal conduit. Wires from the radio ran parallel and close to the flare wires, inducing a current in them which set off the flares. This occurred while the radio was being checked in the hangar.

The spark from a welding torch floated into the belly of a ship being repaired and resulted in a complete loss. A mechanic was removing a battery when it arced igniting gasoline fumes from a leaking valve. One cold morning a mechanic started a fire in a coal stove with oil soaked gloves on his hands. One glove caught on fire, then the other caught and fell into a pail of gasoline resulting in the loss of five ships.

Static electricity either while refueling or spraying with dope or gasoline has caused several serious fires. Unprotected electric

light bulbs at the end of extension cords, when allowed to rest on fabric, are also a frequent cause of loss.

Another airplane was destroyed when a pan of gasoline which had formed under the dripping carburetor was ignited by a spark from the exhaust of a tractor which was being driven out of the hangar.

Fire in the air fortunately occurs less often than on the ground but it too usually results in total loss. In one case the fuel line on the left engine of a ship broke in flight. The pilot did not know what had happened because the fire, being in the blast of the air-stream within the cowl, was similar to a blow-torch flame, small but hot and hardly visible. The engine kept running although fuel pressure was falling and the pilot experienced other troubles. He landed safely but as soon as the airplane lost speed, the air blast no longer confined the blaze. It spread so rapidly that passengers had no time to save even their handbags. In another case the pilot became conscious of fire at 3,000 feet. It smelled like insulation, so he turned off the generator and the master switch that led from the battery to all electrical apparatus. As he was losing altitude, a passenger remarked that the rear of the cushion seemed to be getting hot. On removing the cushion, he found a small part of the upholstery smoldering. This was put out. When the passengers raised the lid under the seat cushion which gave access to the radio receiver and battery, large flames leaped in their faces. The flames were so big that the pilot decided not to use the extinguisher, fearing a combination of flame and extinguisher fumes would knock him out. The passengers closed the door, replaced the seat cushions to their usual position and sat down on them to keep the fire within the radio compartment. The pilot landed lafely saving his passengers, but the ship was destroyed.

Several years ago the National Fire Protection Association studied the situation and came to the conclusion that 12% of all airplane losses were caused by hangar fires. Their analysis of 40 fires was as follows:

	Number of Fires
Ignition of Inflammable Vapors	13
Explosion, source unknown	4
Doping operations	2
Fire in engines	2
Oil burner	1
Washing plane with gasoline	1
Flames from exhaust of engine	1
Explosion of gas heater	1
Ignition by blow torch	1

	Number of Fires	
Heating Appliances	5	
Overheated furnace or stove		4
Coal stove tipped over		1
Smoking	4	
Welding Operations	3	
Welding gasoline tank		1
Acetylene torch set fire to fabric of plane		1
Fire in gasoline torch		1
Miscellaneous	5	
Acetylene torch ignited barrel of lacquer		1
Supposed short circuit		2
Lightning		1
Children and matches		1
Supposed Incendiary	2	
Unknown	8	
Total Fires	40	

Fire losses could be reduced if airplane owners, airport managers and ground personnel could be taught to respect the fire hazards that continually surround the airplane. Ignorance or lack of discipline among ground personnel is the most frequent cause of fire loss. Good hangar housekeeping should prevent fires from starting by proper installation and maintenance of electrical and heating equipment, by permitting no open flame within the hangar proper (limiting welding if necessary to locations near the door), by absence of flammable debris in the hangar, by exercise of self-control and discipline on the part of personnel in regard to smoking, welding, testing, doping, cleaning airplanes with gasoline and operating engines inside the hangar. To attack fires and keep them from spreading after they start, a supply of adequate fire extinguishers should be quickly accessible. It is of great importance to attack the fire when it is still very small because the usual extinguisher is not large enough to cope with larger fires, hence the great need for speed. Personnel should be instructed in the proper use of the various types of extinguishers (see First Aid Fire Appliances, Published by National Board of Fire Underwriters).

Crowded hangars always present a concentration of fire hazard. While it would be desirable not to have wings overlap and in fact to have each airplane separately stored in its own fire-proof hangar, the economics of hangar operation militate against such practice. Nevertheless, by good hangar construction and strict management, losses could be reduced appreciably. (See Construction and Pro-

tection of Airplane Hangars, National Board of Fire Underwriters.)

A good airport manager should periodically check his hangar as follows:

Airport Self-Inspection Report — Fire

(The airport management should appoint a fire inspector to check "Fire" hazards with this report.)

Take nothing for granted—See the object before you comment on it. Make someone responsible to adjust, repair, clean or admonish whenever required—the responsible person's name should be noted and he should be followed up. Make your comments and instructions specific.

LOCATION HANGAR NO.

GENERAL APPEARANCE

Crowding of equipment; ease of rolling equipment out; any equipment such as cars, that should not be in hangar. Look under staircases, in booths.

FLOOR AND WALLS

Especially corners; no oil, no papers, no debris; cleaned nightly.
Roof trusses.
Floors should be kept clear of accumulated grease or oil.

DOORS

Open easily, fire doors close easily (should be self-closing).

FIRE EXTINGUISHERS

Location (accessibility).
Condition.
Men should be instructed in operation of extinguishers. Hold drills every month.

STORAGE ROOM

Clean. Condition of electrical equipment and conduits. Flares, paint, dope. Door should be spring closing.

LOCKERS AND CABINETS

Neat, no inflammable materials, oily rags.

WORK BENCHES

ELECTRICAL EQUIPMENT

Conduits (Plugs should be 40" above floor).

Extension cords—insulation.

Extension lamps (guards) used properly.
Motors—sparking.

HEATING SYSTEM

Overheating sparks, insulation, leaks. Heating system should be in separate vapor tight room. If by coal stove, should be about 18" above floor.

DIRECT FIRE HAZARDS

Anyone smoking (who).
Anyone running engines (who).
Anyone welding (who) (extinguishers on welding stand). Extra man standing by with extinguisher.
Anyone soldering (who).
Anyone doping or spraying (who).
Anyone cleaning ships with gas (who).
Any tanks overflowing or leaking.
Adjoining fire hazards (dry grass, piled debris, railroads, etc.).

OFFICE

Doors, fire extinguishers, floor, waste cans, cleaned nightly, electrical conduits.

LAVATORIES

Clean

SHOP

Vapor proof bulbs, floors, walls, cleaned nightly, waste cans, benches, smoking, extension cords, lamps (see electrical equipment).

DOPE ROOM

Vapor proof bulbs, condition.
Electrical wiring, condition (There should be no plug outlets).
Switches (should be vapor proof).
Ventilation.
Windows and doors work easily.
Fire Extinguishers—number, condition.
Motors (any sparking).
Heating system.
Storage of dope, brushes, etc.
Daily cleaning.
Waste cans.
Smoking.
Shoes worn by workmen—sparks.

RUBBISH CANS & SELF CLOSING CANS (for oily rags, waste)

Lids on, cleaned out daily.

SIGNS AND BULLETIN BOARD

Condition.

NIGHT WATCH PUNCH LOCK SYSTEM

OUTSIDE EQUIPMENT

Gas pumps & Trucks—condition (no refueling in hangar permitted).
Fire Extinguishers—condition.
Condition of hose.
Grounding wire and chain. (Tanks should be grounded both while being drained or filled.)
Fences, gates, roads.
Anyone smoking in vicinity during operations.
Check operation of fire alarm—condition of battery.

FIRST AID EQUIPMENT

Operating condition.
Fire Extinguishers.
Axes.
Cables and hooks.
Medical kit.

Fire extinguishers should bear tags showing last recharge date, should be recharged at least once per year and immediately after use. All extinguishers except carbon dioxide and carbon tetrachloride types must be protected from freezing. Hangar should be supplied with one 2/3½ gallon Foam extinguisher for each 2500 square feet of fire area or one 15 lb. carbon dioxide extinguisher plus one one-quart carbon tetrachloride extinguisher, a forty gallon Foam wheeled extinguisher for each 7500 square feet of fire area. Offices and waiting rooms should have a Foam or Soda Acid extinguisher for each 2500 square feet of area or less. Repair shops, storage rooms, engine testing rooms should be equipped with one 2½ gallon Foam extinguisher and a 15 pound carbon dioxide extinguisher, one one-quart carbon tetrachloride extinguisher for each 2500 square feet of area or less. Welding stands should be supplied with a one-quart carbon tetrachloride extinguisher. Filling stations or trucks should have several of these or carbon dioxide extinguishers.

Inspector..... Date.....

Keep this report on file, check fire hazards at least once per month and keep your eyes open in between.

Good practice for refueling and starting engines would be along the following lines:

(a) No smoking within fifty feet of the aircraft being refueled. 'No Smoking' signs should be displayed in prominent places.

(b) The engine should be stopped, switches in an 'off' position, and the engine cooled.

(c) The power on all radio transmitters and receivers should be off.

(d) The refueling equipment and the aircraft must be grounded.

(e) Gasoline should not be permitted to overflow from the tank. In hot weather, tanks should not be completely filled with cold gasoline which will subsequently expand and overflow. Even the spark from a steel tool dropping on concrete can set off gasoline fumes.

(f) Only those responsible for the refueling or the maintenance of aircraft should be allowed within fifty feet of the refueling operation.

(g) No aircraft should be refueled in hangars.

(h) A good felt strainer is preferable to a chamois.

(i) No refueling during Winter flying operations while the engine is being warmed by application of heat from plumber's stove or similar means.

(j) Fire extinguishers should be within easy reach of those refueling.

(k) When starting the engine, special care should be taken not to overprime, and if the aircraft is not fitted with a pressure type of fire extinguisher, it is a wise precaution to have a man present outside the aircraft with a portable fire extinguisher.

(l) In the event of a backfire, endeavor to keep the engine turning over so as to suck the flames up into the air intake.

(m) Do not start engines with pools of gasoline under the airplanes.

Fires in the air or in the carburetor can be fought as follows:

(a) Turn off gasoline.

(b) Open throttle fully.

(c) Switch off, after engine has ceased firing.

(d) Lose height by side slipping.

Students should be given practice in this routine until they carry it out without hesitation.

(a), (b) and (c) should also be used in the event of an engine catching fire on the ground.

The throttle is opened fully to use up as quickly as possible the gasoline in the carburetor.

Sideslipping is to prevent the smoke from entering the cockpit and the flames from spreading down the fuselage.

From the design engineer's point of view it seems that non-flammable fabric both in the upholstery and exterior covering would prevent many fires. Fuel lines that do not fracture or burn through so easily would also help and apparently they will soon be common practice in engine installation. Flame arrestors on carburetors would prevent many fires, especially in winter when a combination of over-priming and backfires results in many losses (ships should be turned tail to wind, so that flames will not lick backwards along fuselage). A code of good practice for the installation of all electrical equipment is very much needed. The design of cabins and seats so that sparks could not lodge in covers or fall under the floor onto fabric would also help.

The smaller need for welding and doping on riveted metal airplanes would reduce fire losses if the number of such ships in proportion to the total were greater.

Fires which occur after a forced landing or a crash might be reduced if heavy oil were used instead of gasoline. The retractable undercarriage and perhaps the tricycle undercarriage should have a favorable effect on reducing fires following a forced landing because the airplane is less likely to turn over on its back. If the stall/spin could be avoided in landing accidents, many gruesome fires following crashes might be avoided.

The problems affecting fire hazards are well known and recognized by engineers. Progress is being made towards their solution. But fire losses due to hazards that exist *now* can be reduced only by educating airplane operators and mechanics to the need for good housekeeping as well as the adoption of safe practices in operating and working around the airplanes.

According to the Bureau of Air Commerce records, non-scheduled flying is becoming safer. In the periods 1932 to 1937, the mileage flown by airplanes in non-scheduled operation increased about 32% while the miles flown per accident increased 50%. This is a good indication of the increasing reliability and safety of air travel achieved by design, regulation and education.

If accidents involving student instruction could be separated from these accident statistics, the record would probably be much better. However, approximately 20% (1 in 5) of all certificated airplanes were involved in an accident last year, and of that number 97% needed replacement of a major assembly, required complete overhaul or were completely demolished. Furthermore, with less than ⅓ of the total number of all certificated airplanes insured, the insurance companies pay out an average of well over $1,000 per day in aviation claims exclusive of airline claims. Although the general accident trend is improving, a study of ways and means of reducing accidents should show where important advances can be made.

It is estimated that at the end of 1937 there were about 2,000 light planes in this country. A light plane, as commonly understood in this country, is one which weighs under 1,500 pounds with a wing loading in the neighborhood of 6-10 pounds per square foot and a power loading of 19-26 pounds per horsepower. In the same year there occurred 592 accidents among these planes or an accident rate of 30% compared with 20% for all civil airplanes. This does not include airplanes lost by hangar fire because records are not available of all such losses. In the typical light plane accident, the airplane is severely damaged but not washed out; the injury to personnel is nil; the accident occurs while landing or taking off and it is caused by pilot error.

An analysis of these accidents shows that the nature of the accidents varies considerably with the make of the airplane. One make of airplane had a high percentage of take off accidents and a high percentage of pilot errors with a low percentage of engine failures. This airplane had a higher wing loading than others. Since the type of flying was the same for all, it is surmised that many of the accidents may have been due to pilots underestimating the speed and distance necessary for take off.

Another make suffered a comparatively high percentage of structural failures. This is rare and when it does occur it is not likely to be dangerous to personnel. It is likely, however, to cause considerable damage to the airplane.

A third make had an average showing with regard to damage to the aircraft but its personnel injury record was better than the others. A low percentage of pilot errors indicated good flying characteristics but a high percentage of forced landings might indicate that it was used a good deal for cross country work because many forced landings are due to fuel shortage or getting lost.

An analysis of accidents by class of flying shows a high per-

centage of accidents due to pilot error for instructional flying, a low percentage for commercial flying. See table 1. This emphasizes the need for competent instruction and close supervision of flight training. The fact that there are more accidents in instructional flying than in pleasure or commercial flying may be counterbalanced by the excess of instructional flying over other flying. Such an excess is indicated by the ratio of student permits to certificated pilots. The ratio is about 40,000 (possibly 20,000 active) to 18,000.

The classification of light plane accidents by class of pilots shows that 52% of the accidents involved student pilots. This was to be expected. See table 2.

Although Limited-Commercial Pilots number about 3% of the total certificated pilots in the country, they accounted for 6% of the light plane accidents and 30% of these were fatal. The severity of the accidents involving Limited-Commercial Pilots is possibly due to the limited experience and undue confidence. It is generally felt that over 50 and under 500 hours the average pilot's confidence exceeds his ability. The majority of Limited-Commercial Pilots fall in this class. Before that time they are certain that they do not know it all and after that time they again suspect limits to their ability. This reasoning would also apply to Private Pilots, but the record of the Private Pilot is improved by the caution of Private Pilots having over 500 hours. After 200 hours a Limited-Commercial Pilot will usually become a Commercial or revert to Private.

It is not advisable to discriminate against Limited Commercial Pilots as such but rather it is advisable to look with suspicion on a pilot with less than 200 hours flying unless much of it has been cross-country and a checkup reveals that his judgment and attitude towards safety are satisfactory.

Mr. James E. Hoskins, Chairman of the Aviation Committee of the Actuarial Society of America, in an address on Aviation Life Insurance to the National Association of State Aviation Officials in 1936, made the following comments on pilot mortality. These comments should not be confused with airplane accidents because less than 10% of aircraft accidents result in pilot fatalities.

"It appears that the most dangerous time in a pilot's career is not while he is taking instruction or in the early part of his solo flying, but for a period after he receives an advance license or military rating. At first he knows he is green and plays safe; eventually he gains skill; but there is an intermediate time when his self-confidence exceeds his ability.

"Pilots who have been involved in an accident in recent years

or have been disciplined for a serious violation of air regulations have a greater chance of a fatal crash than those who have not, although they might be expected to have become especially careful.

"No great difference has been observed between the younger pilots and those of more mature years. Perhaps this might be true but for the care exercised in licensing pilots." Note: This refers to mortality rate; young pilots have more accidents, however.

"The kind of flying is very important. Those kinds which are most closely supervised, either by yourselves and Uncle Sam, or by responsible owners, are clearly the safest, such as airline and military flying, and airplanes owned by corporations for business use. In the case of airline pilots, however, this is offset by their large number of annual hours in the air.

"The average amount of flying in the course of a year is by far the most important factor affecting the insurance company's problem of charging for a year's insurance."

Insofar as insurance rating is concerned, classification by type of license is not sufficient. A Commercial Pilot of long experience should be safer to fly with than a Private Pilot with a couple of hundred hours but if the former flies a thousand hours to the Private Pilot's fifty per year, he is a worse risk from the insurance companies' viewpoint. For that reason, Commercial Pilots usually pay a higher rate than Private Pilots. The exposure to hazard is greater.

In an old but interesting report the Actuarial Society of America have the following to say in 1932:

"There are indications that the mortality among students is relatively low, but that after obtaining a license, and particularly after qualifying for a Transport License, the pilot is liable to reach a stage where, in the words of a Navy Department report, 'The flash of over-confidence seems to carry the novice beyond the realm of his ability.'

"It appears that the mortality rate increases with amount of annual flying time, although not in direct proportion.

"Most of the available evidence indicates no material improvement in annual mortality rate after 500, or at the most 1,000 hours' experience has been passed. Evidence indicates that the annual mortality rate of pilots of long experience is not materially better than that of pilots having from 500 to 1,000 hours' experience.

"Furthermore, it appears that the proportion of pilots with records of accidents since 1927 is higher among young pilots than

among older pilots. That is to say, young pilots are more than usually liable to have accidents; and, having had accidents, have a high rate of mortality. The conclusion seems to be that applications from young pilots should be underwritten with especial care, to ascertain that they have neither an accident record nor characteristics which are liable to produce accidents."

These statistics and conclusions may be changed in the next two or three years by the new regulations which provide for the special approval of instructors, and by the attitude of the Civil Aeronautics Authority towards instructional flying.

The safest type of flying appears to be commercial with pleasure slightly better than instruction. The safest class of pilot is the Commercial, followed by the Private and Student. A student under good supervision should be safer than one under poor supervision. It would be useful and interesting to verify this, if it were possible. Limited commercial pilots have a worse record than students.

From the classification of accidents by nature, the deadliness of spins and stalls with or without engine power is outstanding. This contributed 46% of the light planes that were totally destroyed and 63% of the fatalities. See table 3.

It seems that the most outstanding need among light planes, and heavier airplanes too, is to design one that will not spin or whip into a dive after stalling or perhaps not stall at all. If such an airplane were used extensively, the accident rate would probably continue to be the same because of the human desire to push a machine to its utmost, but the severity of the accidents would be lessened.

It is interesting to note that a collision with another aircraft in flight is not necessarily fatal. Only three such accidents were recorded with light planes last year.

Collision in full flight with objects other than aircraft are usually fatal. Ninety-two per cent of these accidents were due to pilot error.

The fact that take-off accidents are more severe than landing accidents although not as frequent may reflect the fact that there is greater emphasis on landing technique than on take-off technique. Perhaps the tricycle undercarriage will simplify both techniques.

Engine failure as a cause of accidents is higher than any other cause except pilot error. The fact that there is a comparatively high proportion of severe accidents and aircraft damaged compared to severe personal injury leads to the conclusion that a pilot with a dead engine usually can put the airplane down with safety to himself if not to the airplane. See table 4.

A study of the tables reveals:

Nature of Accident by Frequency

(*From Table* 1)

Landing	32%
Take off	22%
Spin/stall engine OK	11%
Forced landing	10%
Taxiing	10%

Most Damaging (*From Table* 3)	*% Completely Demolished*	*% Resulting in Fatal Injury*
Spin/stall engine failure	75%	50%
Spin/stall engine OK	57%	43%
Collision with non-aircraft	52%	40%
Structural failure	37%	25%
Collision with aircraft	33%	33%

Many other interesting conclusions may be obtained from these tables but they indicate that pilot error is the most important cause of accidents with design and characteristics of the aircraft contributing largely. The frequency of landing, take off and spin/stall accidents is consistent with records of accidents involving heavier airplanes. Most engineers are well aware of this regrettable condition.

Because proper instruction is the best guarantee of loss prevention among student pilots, one group of insurance companies has itself undertaken the task of approving instructor pilots. A student pilot flying under the supervision of an approved instructor pilot is eligible to secure very inexpensive personal accident insurance. Seventy per cent of the applicants for approval as instructors have been approved.

Reasons for deferring the approval of an applicant are various. For example, a man who derives a major part of his income from an activity outside of aviation is seldom approved as an instructor. Applications have been made by policemen, postmen, factory workers, and other pilots who instruct only in their spare time. Unless the latter have outstanding records, their applications are deferred for three reasons:

1. Since these men are away from the field a good portion of the time, they do not know how the equipment in which they instruct is being used. The airplane may receive a very severe beating and get into a dangerous structural condition, yet these men might not know about it because of their absence from the field.

2. Since they have only a limited time in which to give in-

struction they are likely to hurry through their instruction and also are likely to take chances by instructing in bad weather.

3. The fact that they have another source of income might tend to make them less careful about the condition of their equipment and their flying operations in general.

Incidentally, the size and nature of the airport from which instruction is carried on is also considered in the approval of instructors. One pilot, who flies from a field which is considered too small, presents the argument that his students are better pilots because they learn to land in a small field. He adds that pilots who have learned to fly from larger fields find difficulty in getting into his small field although his students do it very easily. The reply to this argument was as follows:

"In general Student Pilots who learn to fly from small fields know how to handle themselves better when making forced landings than those who learn to fly from large fields. It has also been said that pilots who learn to fly in dangerous airplanes are better pilots than those who learn to fly in safe airplanes because they are practiced in the art of handling themselves under uncertain conditions. Pilots who learned to fly during the war are usually cited as examples.

"If this reasoning were applied to other activities, a person learning to drive a car for instance should not learn on a lonely road but rather should be taught at the corner of 42nd Street and Broadway! This policy would indicate that one should learn and practice under the most difficult and severe conditions in order to be safe under normal conditions. A good deal of merit exists in this reasoning except that it might prove expensive and it inhibits progress. The fact, so far as commercial aviation is concerned, is that successful instruction in the early days, when dangerous airplanes were used, was given only to 'supermen,' who had more 'guts' than the average, and therefore reacted better in emergencies. The others, who did not react safely, were killed. In these days, however, we are dealing with the *average* person in commercial aviation. It appears that the correct and safe procedure is to learn in the normal way at a normal field and to prepare for the difficult situations during the course of instruction."

The requirements for instructor approval by the insurance organization are not very stiff. They are designed to be minimum rather than maximum. The object is to shut out the instructor who is unqualified rather than reward outstanding merit. The requirements are:

1. A Commercial Pilot Certificate with an Instructor's Rating and at least 400 hours solo. This amount of time is required as it is felt that only after at least such an amount will the pilot have had sufficient general experience.

2. A few students licensed to indicate success and ability to impart knowledge and a demonstrated thoroughness and competence in instruction.

3. The planes used will be of suitable design with suitable engines and well maintained.

4. His general record will be reasonably good, i. e., no excess drinking, few or no accidents, good reputation, no recklessness. Concerning accidents, one or two are not grounds for deferring approval provided they were largely due to circumstances beyond the pilot's control.

5. Full time employment as an instructor. This restriction was put in to eliminate unfair competition to those who depended solely on instruction for a livelihood as well as to eliminate casual instructors. Exceptions are occasionally made, as for instance in the case of pilots who have a flying job which leaves them enough time for instruction.

Seventy per cent of the applicants have been approved, 30% have been deferred. Those deferred fall into the following classes. In some cases there were two or more reasons for deferring action.

Airport Unsatisfactory	9	5%
Not a full time Instructor	47	24%
Character, i. e., reckless, excess drinking, too impulsive, etc.	25	13%
Equipment obsolete or poorly maintained	7	4%
Flying unsatisfactory, i. e., incompetent instructor, lack experience, too many accidents, poor supervision	55	28%
Miscellaneous	16	8%
Under 400 hours	35	18%
	194	100%

Among those deferred, examples of improper instruction were frequent. One instructor would not give spins to a student until just before the license test was due for fear of scaring the student. Civil Aeronautics Authority regulations require spin instruction before solo. Another pilot was giving spin instruction and was looking back at the student while so doing. He suddenly saw a tree go by, realizing the scarcity of trees at high altitudes above the ground, the instructor got to work and pulled the plane out in time to prevent a fatality. However, he hit so forcibly in the recovery that one side of the landing gear was washed out. Other pilots were

turned down for such physical defects as color blindness, fainting spells, etc. Lack of supervision or incompetent supervision was considered a serious flaw. In one case a student was permitted to snap-roll, loop and spin at 400 feet.

At this point, it should be advisable to emphasize that the typical professional pilot is a very sober, earnest individual, sincere in his desire to see aviation advance and very cooperative in his attitude towards safety. He is very far from the slap-dash type which popular imagination finds so romantic.

Besides insisting on minimum qualifications for an instructor pilot, it has been found necessary to outline desirable courses of instruction. These are merely recommended. Instruction procedure is not so important as thoroughness and constant supervision by a well qualified instructor. For example, in the outline which follows, taxiing instruction is given as one of the first of the courses. But one very successful instructor gives this last because he thinks taxiing is more difficult than learning to fly. The outline has been found satisfactory. It has been adopted by several flying schools and represents current good practice in flying instruction.

Recommended Outline of Instruction Toward a Private Pilot's Certificate

1. First Phase: Minimum training of eight flight hours.
   (a) PRELIMINARY GROUND INSTRUCTION: Thorough familiarization with functioning of airplane, controls, engine, and instruments. Warning about: danger from propellers; difference between ground and air speed; leaving engine running with no one in cockpit; parking ship in strong winds; starting engine, switching, choking, priming, signals (student not to handle propeller). Advice against mixing liquor and flying. It is good policy to discuss the ensuing lesson with the student on the ground before taking-off.
   (b) Taxiing to proficiency (handling of ship in gusty air).
   (c) Air Work.
      (1) Straight and level flight to proficiency.
      (2) Gentle climbs and glides to proficiency.
      (3) Gentle turns.
      (4) Approaches for landing.
      (5) Stalls, stressing approaches to stalls and recovery.
      (6) A: Landings and take-offs.
          B: Simulated forced landings from take-offs only from approximately 200 feet.
      (7) Spins and recovery.
      (8) Solo.
2. Second Phase: Minimum twelve hours. A check by the instructor before each of the first three solo flights and frequent checks at least ONCE EVERY THREE HOURS through all maneuvers required in the first phase.

This is to prevent student from feeling now that he had soloed, he can have ship any old time; also to compensate for changes in air conditions. Instruction in:

(a) Figure 8's, gentle and steep.
(b) Simulated forced landings.
(c) Dual cross country trips with landings at other airports and a thorough check and review of all maneuvers of the first two phases.

3. Third Phase: Instructor's check of all maneuvers in phases one and two ONCE EVERY FIVE HOURS, stressing the following:

(a) Precision maneuvers (spot landings, simulated forced landings, spins and figure 8's).
(b) Solo cross country.
(c) Complete Private Pilot's examination.

NOTE: The above is a logical and normal sequence of instruction to serve as a GUIDE to instructors, and to give a UNIFORMITY OF INSTRUCTION in a sequence that experience has shown to be one that insures the greatest progress by the student. Records of the student's progress should be kept.

It is further recommended that students be acquainted with control tower operation and flight plan procedure.

All the comments made thus far result principally from the existing characteristics of the airplane (design) and of existing control or regulation. These two agencies for increasing safety cannot be quickly improved. Too much physical and mental inertia would have to be overcome. The most logical and the easiest way for improving the safety record and preventing losses is by education and by disseminating the results of experience.

While generalizations are always dangerous, I should like to venture the thought, with my fingers crossed, that safety is achieved more readily by knowing how to operate safely that which we already have than by improvement in design. Human nature is so constituted that improvements in design are employed not to achieve safety but to take advantage of the greater utility which such improvements usually afford. A pilot may obtain an airplane with which it is possible to get in and out of a very small airport. Instead of considering this an emergency operation, he takes advantage of the design to actually operate regularly from such airports. This is a foible of human nature and is very much to be commended for its effect on design but its effect on accidents is not favorable, except indirectly.

Improvements in design usually make flying easier or make it more useful, thus inducing more people to fly. The mileage flown per accident seems to increase with greater use; hence the indirect influence of improvements on safety records. However, on the basis of number of airplanes per accident, the future seems pessi-

mistic. It must be admitted that the human element creates a greater hazard than the airplane itself.

An agency for the education of instructors would aid tremendously in promoting good instruction practice, in educating instructors in the finer points of the art, tipping them off on the best way to instruct in various types of ships, and informing them where instruction usually fails as indicated by accidents among students.

One type of ship is probably as good as another, so long as the instructor understands the limitations of the ship and imparts this knowledge to the student. For example, in a side by side ship with wheel control, many students get in the habit of resting their hands on the wheel, putting both hands on the wheel as though they were driving a car. Then when an emergency arises, when one hand should be on the throttle and one on the wheel, time is lost where time is most valuable. Instructors who are training in this type of ship should be advised of the situation and impart this knowledge to their students. Under the present hit-and-miss system of instruction, the student is only advised by chance or if he happens to get a really experienced instructor. The dangers of having the center of gravity too far back are not emphasized enough. Another point is the technique in coming out of a spin. The usual instructions are, "Kick opposite rudder and push the stick forward." One instructor of long experience knowing that many recent accidents were due to the failure to recover from spins, decided to see what would happen if he obeyed the usual instructions, "Kick opposite rudder and push the stick ahead."

He made his tests in a popular type of airplane widely used for instruction purposes. The engine was throttled slowly while the airplane was held in normal flight attitude till complete stall had occurred. At that time the elevator control was pulled straight back and full right rudder applied. After completion of two full turns of the resulting spin, the elevator control was pushed full forward and hard left rudder applied. Instead of coming out of the spin, the ship vibrated slightly, went over on its back and kept spinning in an inverted position. Operation of rudder to either side had little or no effect and the pilot was thrown violently against the belt. Recovery was effected by *pulling the wheel back,* applying right rudder until the spin became normal, after which the left rudder was applied with the wheel moved to a position ¼ back from neutral.

The violent motion and the inverted position proved very confusing to this pilot and in the case of a student being placed in the same position might easily result in complete loss of head and spin-

ning in, and probably has. At the end of twelve tests, this instructor concluded that recovery from a spin cannot necessarily be obtained by shoving the wheel or stick forward in every case. Recovery is effected slowly with resultant loss of altitude when the controls are neutralized. Furthermore, instructors should abandon the stick-full-forward explanation of recovery from spins unless it applies to a particular ship. They should instil in their students the idea that each ship may have slightly different characteristics.

These instances are merely mentioned to bring out the need for improving and disseminating the finer phases of instruction which are usually available only from very experienced instructors. These finer points often mean the difference between safety and a crash.

It is unlikley that the popular airplane of the future or, for that matter, of today will receive adequate maintenance unless the owners and pilots have the proper respect for and knowledge of maintenance. Thorough inspections at long intervals must be supplemented by continuous preventive maintenance. Airline experience has proved it, regulations require it but only education can show the need and desirability for it. Regulation cannot succeed without the owners' and pilots' cooperation, and that can be secured through education.

To show the need for education in maintenance and inspection, the following items are taken at random from typical inspection reports on various light planes made between the yearly government inspections. They show the need for training of owners and pilots in maintenance or inspection. Each item is from a different ship: (a) Left exhaust manifold flanges cracked; (b) Oil drain and gasoline strainer not saftied; (c) Fiber bushings missing from the elevator cables and from both rudder cables at the guide at the tail of the fuselage; (d) Hinges on the right side of the elevator to stabilizer evidently do not coincide causing considerable stiffness in controls and bending the tip end of the stabilizer when moved; (e) Oil drain pipe to tank twisted from removing the drain plug. Metal tipping on propeller dented and cracked; (f)) Trailing edge of wings in bad condition. Entering edge badly dented in several places. Several ribs loose at trailing edge. Aircraft not grounded while refueling. Smoking in vicinity of fuel pumps; (g) Baffle for exhaust manifold loose. Oil tank loose. Brake cables frayed at wheels. Right front gas line loose. (h) Propeller hub bolt very loose; (i) Left aileron hinges near fuselage loose on spar; (j) Engine exhaust manifold where connected to cabin heater cracked and deteriorating. Stabilizer control worn and dirty. Fuel and

oil lines too dirty to inspect; (k) Large wet type battery installed at left side of pilot's seat for night flying. No battery box, no drain nor any special provision for installation.

An instructor should instil in his students a proper respect, not fear, for the existing characteristics of airplanes. He should encourage his students to fly within present day operating limitations and impart the knowledge required to judge the airworthiness of an airplane. Such instructors are hard to find except in the large schools and at old and well operated airports. Many instructors think they are doing the right thing when they have been improperly trained themselves. The training of good instructors will do more than any other act to increase safety and prevent losses.

In conclusion the need exists for an agency, probably Federal, which would undertake the education of new flying instructors, teaching them the best methods for imparting flying technique. This would have a more favorable effect on the accident rate and especially on the severity of accidents than any other movement in Aviation. While accident prevention is of tremendous importance to aviation, insufficient recognition has been given to losses caused by fire and windstorm, which are outside the common definition or conception of an airplane accident. These losses may not involve the safety of life but they do seriously affect the economics of aviation. Ground personnel and aircraft operators should be instructed to respect and adopt precautions against fire, windstorm and other hazards pending improvements in airplane design which will reduce them.

Table 1

ACCIDENTS PER CLASS OF FLYING
LIGHT PLANES, 1937

	Number				*Per Cent*			
	Inst.	*Comm.*	*Pleas.*	*Tot*	*Inst.*	*Comm.*	*Pleas.*	*Tot*
Damage to Aircraft								
Washout .....A	53	5	39	97	17	10	17	16 A
Major Overhaul....B	135	27	102	264	44	56	43	45 B
Major Repair..... C	117	16	93	226	38	34	40	38 C
Minor Repair.....D	4	—	1	5	1	—	+	1 D
Total	309	48	235	592	100	100	100	100
	52%	8%	40%					
Injury to Personnel								
Fatal .....A	30	2	19	51	10	5	9	9 A
Severe .....B	17	3	16	36	6	7	7	6 B
Minor C	16	4	29	49	5	10	13	9 C
None .....D	232	32	154	418	79	78	71	76 D
Total	295	41	218	554	100	100	100	100
Nature of Accident								
Collision, full flight, with aircraft ....A	3	—	—	3	1	—	—	1 A
Collision, full flight, with non-aircraft..B	13	3	9	25	4	6	4	4 B
Spin/stall eng. fail..C	5	—	3	8	2	—	1	1 C
Spin/stall eng. OK.D	37	7	22	66	12	15	9	11 D
Forced Landing ....E	28	4	27	59	9	8	12	10 E
Landing Accident ..F	112	12	65	189	36	25	28	32 F
Takeoff Accident ..G	57	9	64	130	18	19	27	22 G
Taxiing Accident ..H	34	4	19	57	11	8	8	10 H
Fire in Air.....I	—	—	1	1	—	—	+	+ I
Structural Failure..N	4	2	2	8	1	4	1	1 N
Miscellaneous X	2	—	3	5	1	—	1	1 X
Indeterminate .....Y	—	—	3	3	—	—	1	1 Y
Not responsible..*NR	14	7	17	38	5	15	8	6 NR
Total	309	48	235	592	100	100	100	100
Cause of Accident								
Pilot 213	17	129	359	65	32	51	57	
Structural Failure.....	10	3	11	24	3	6	4	4
Weather	33	10	25	68	10	19	10	11
Airport	7	1	14	22	2	2	6	3
Miscellaneous	12	6	18	36	4	11	7	5
Engine Failure.....	38	9	34	81	12	17	14	13
Unknown	1	—	4	5	+	—	1	1
Not responsible	14	7	17	38	4	13	7	6
Total 328	53	252	633	100	100	100	100	

* Planes involved in a collision but in no way responsible. The planes may be at rest, taking off, landing, or taxiing.

Table 2

ACCIDENTS BY CLASS OF PILOT
LIGHT PLANES, 1937

		Number					*Per Cent*					
		Com	*LC*	*Pri*	*Stu*	*Tot*	*Com*	*LC*	*Pri*	*Stu*	*Tot*	
Damage to Aircraft												
Completely Demolished	A	16	10	19	48	93	16	30	14	17	17	A
Major Overhaul	B	49	11	68	124	252	51	33	50	43	45	B
Major Repair	C	32	12	49	113	206	33	37	36	39	37	C
Minor Repair	D	—	—	—	3	3	—	—	—	1	1	D
Total		97	33	136	288	554	100	100	100	100	100	
		17½%	6%	24½%	52%							
Injury to Personnel												
Fatal	A	8	4	11	28	51	8	12	8	10	9	A
Severe	B	9	4	11	12	36	9	12	8	4	6	B
Minor	C	11	6	14	18	49	12	18	10	6	9	C
None	D	69	19	100	230	418	71	58	74	80	76	D
Total		97	33	136	288	554	100	100	100	100	100	
Nature of Accident												
Collision, full flight, with aircraft	A	—	—	1	2	3	—	—	1	1	1	A
Collision, full flight, with non-aircraft	B	9	2	3	11	25	9	6	2	4	5	B
Spin/stall eng. fail.	C	2	1	2	3	8	2	3	1	1	1	C
Spin/stall engine OK	D	8	5	15	38	66	8	15	11	13	12	D
Forced Landing	E	10	4	16	29	59	11	12	12	10	11	E
Landing Accident	F	32	7	41	109	189	33	21	30	38	34	F
Take-off Accident	G	24	11	39	56	130	25	34	28	19	23	G
Taxiing Accident	H	7	2	16	32	57	7	6	12	11	10	H
Fire in Air	I	—	—	1	—	1	—	—	1	—	+	I
Structural Failure	N	4	1	—	3	8	4	3	—	1	1	N
Miscellaneous	X	1	—	1	3	5	1	—	1	1	1	X
Indeterminate	Y	—	—	1	2	3	—	—	1	1	1	Y
Total		97	33	136	288	554	100	100	100	100	100	
Cause of Accident												
Pilot		42	22	83	212	359	40	58	56	69	60	
Structural Failure		10	2	4	8	24	10	5	3	3	4	
Weather		12	3	19	34	68	12	8	13	11	11	
Airport		8	2	7	5	22	8	5	5	2	4	
Miscellaneous		11	3	10	12	36	11	8	7	4	6	
Engine Failure		20	6	23	32	81	19	16	15	10	14	
Unknown		—	—	1	4	5	—	—	1	1	1	
Total		103	38	147	307	595	100	100	100	100	100	

NOTE: Accidents classified under NR (light airplane not responsible for the accident) were not considered in this table.

Table 3

CLASSIFICATION OF ACCIDENTS BY NATURE
LIGHT PLANES, 1937

Damage to Aircraft

NATURE	*A*	*B*	*C*	*D*	*Tot*	PER CENT *A*	*B*	*C*	*D*	*Tot*	PER CENT A	*B*	*C*	*D*
						Read Across					Read Down			
A	1	1	1	—	3	33	33	34	—	100	1	+	+	—
B	13	11	1	—	25	52	44	4	—	100	14	4	+	—
C	6	2	—	—	8	75	25	—	—	100	6	1	—	—
D	38	23	3	2	66	57	35	5	3	100	40	9	1	40
E	7	30	22	—	59	12	51	37	—	100	7	11	10	—
F	12	87	90	—	189	6	46	48	—	100	12	33	40	—
G	12	76	42	—	130	9	59	32	—	100	12	39	19	—
H	—	16	40	1	57	—	28	70	2	100	—	6	18	20
I	1	—	—	—	1	100	—	—	—	100	1	—	—	—
N	3	3	2	—	8	37	37	26	—	100	3	1	1	—
X	—	3	2	—	5	—	60	40	—	100	—	1	1	—
Y	—	—	3	—	3	—	—	100	—	100	—	—	1	—
NR	4	12	20	2	38	11	32	52	5	100	4	5	9	40
Tot	97	264	226	5	592	16	45	38	1	100	100	100	100	100

Injury to Personnel

NATURE	*A*	*B*	*C*	*D*	*Tot*	PER CENT *A*	*B*	*C*	*D*	*Tot*	PER CENT A	*B*	*C*	*D*
A	1	—	1	1	3	33	—	33	34	100	2	—	2	+
B	10	3	3	9	25	40	12	12	36	100	19	8	6	2
C	4	—	—	4	8	50	—	—	50	100	8	—	—	1
D	28	14	6	18	66	43	21	9	27	100	55	39	12	4
E	—	2	12	45	59	—	3	20	77	100	—	6	25	11
F	5	8	11	165	189	3	4	6	87	100	10	22	22	40
G	1	8	13	108	130	1	6	10	83	100	2	22	27	26
H	—	—	1	56	57	—	—	2	98	100	—	—	2	13
I	—	—	—	1	1	—	—	—	100	100	—	—	—	+
N	2	—	1	5	8	25	—	12	63	100	4	—	2	1
X	—	1	1	3	5	—	20	20	60	100	—	3	2	1
Y	—	—	—	3	3	—	—	—	100	100	—	—	—	1
Tot	51	36	49	418	554	9	6	9	76	100	100	100	100	100

MEANING OF LETTERS

DAMAGE TO AIRCRAFT
- A Washout
- B Major Overhaul
- C Major Repair
- D Minor Repair

INJURY TO PERSONNEL
- A Fatal
- B Severe
- C Minor
- D None

NATURE OF ACCIDENT
- A Collision, full flight, with aircraft
- B Collision, with flight, with non-aircraft
- C Spin/stall eng. fail
- D Spin/stall engine OK
- E Forced Landing
- F Landing Accident
- G Take-off Accident
- H Taxiing Accident
- I Fire in Air
- N Structural Failure
- X Miscellaneous
- Y Indeterminate
- NR Not Responsible

CLASSIFICATION OF ACCIDENTS BY CAUSE
LIGHT PLANES, 1937

Damage to Aircraft

	CAUSE								PER CENT (Read Across)							PER CENT (Read Down)						
	PI	*ST*	*WE*	*AP*	*MI**	*EN*	*NR*	*Tot*	*PI*	*ST*	*WE*	*AP*	*MI*	*EN*	*NR*	*PI*	*ST*	*WE*	*AP*	*MI*	*EN*	*NR*
A	71	4	1	—	6	11	4	97	74	4	1	—	6	11	4	20	16	2	—	18	15	11
B	160	10	26	7	14	35	12	264	60	4	10	3	5	13	5	45	42	47	44	41	48	32
C	118	10	28	9	14	27	20	226	52	5	12	4	6	12	9	34	42	51	56	41	37	52
D	3	—	—	—	—	—	2	5	60	—	—	—	—	—	40	1	—	—	—	—	—	5
Tot	352	24	55	16	34	73	38	592	60	4	9	3	6	12	6							

Injury to Personnel

	PI	*ST*	*WE*	*AP*	*MI*	*EN*	*NR*	*Tot*	*PI*	*ST*	*WE*	*AP*	*MI*	*EN*	*NR*	*PI*	*ST*	*WE*	*AP*	*MI*	*EN*	*NR*
A	45	2	1	—	1	2	†	51	88	4	2	—	2	4	†	13	8	2	—	3	3	†
B	26	—	—	1	3	6		36	72	—	—	3	8	17		7	—	—	6	9	8	
C	33	1	5	—	2	8		49	68	2	10	—	4	16		9	4	9	—	6	11	
D	248	21	49	15	28	57		418	59	5	12	4	7	13		71	88	89	94	82	78	
Tot	352	24	55	16	34	73		554	64	4	10	3	6	13								

Nature of Accident

	PI	*ST*	*WE*	*AP*	*MI*	*EN*	*NR*	*Tot*	*PI*	*ST*	*WE*	*AP*	*MI*	*EN*	*NR*	*PI*	*ST*	*WE*	*AP*	*MI*	*EN*	*NR*
A	3	—	—	—	—	—	—	3	100	—	—	—	—	—	—	1	—	—	—	—	—	—
B	23	—	2	—	—	—	—	25	92	—	8	—	—	—	—	7	—	4	—	—	—	—
C	5	—	—	—	—	3	—	8	63	—	—	—	—	37	—	1	—	—	—	—	4	—
D	61	1	1	—	3	—	—	66	92	2	2	—	4	—	—	17	4	2	—	9	—	—
E	16	1	6	1	1	34	—	59	27	2	10	2	2	57	—	5	4	11	6	3	47	—
F	138	10	17	9	12	3	—	189	73	5	9	5	6	2	—	39	42	31	56	35	4	—
G	76	1	7	3	11	32	—	130	59	1	5	2	8	25	—	21	4	12	19	32	44	—
H	27	4	20	3	3	—	—	57	48	7	35	5	5	—	—	8	16	36	19	9	—	—
I	—	—	—	—	1	—	—	1	—	—	—	—	100	—	—	—	—	—	—	3	—	—
N	—	7	—	—	—	1	—	8	—	88	—	—	—	12	—	—	30	—	—	—	1	—
X	2	—	2	—	1	—	—	5	40	—	40	—	20	—	—	1	—	4	—	3	—	—
Y	1	—	—	—	2	—	—	3	33	—	—	—	67	—	—	+	—	—	—	6	—	—
NR	—	—	—	—	—	—	38	38	—	—	—	—	—	—	100	—	—	—	—	—	—	100
Tot	352	24	55	16	34	73	38	592	60	4	9	3	6	12	6							

* MI includes accidents whose cause was unknown of which there were four.
Under DAMAGE TO AIRCRAFT were 1 C, 3D; under INJURY TO PERSONNEL 4 D; under NATURE OF ACCIDENT 1 F, 1 X and 2 Y.
† NR accidents not included under INJURY TO PERSONNEL.

MEANING OF LETTERS

DAMAGE TO AIRCRAFT
- A Completely Demolished
- B Major Overhaul
- C Major Repair
- D Minor Repair

INJURY TO PERSONNEL
- A Fatal
- B Severe
- C Minor
- D None

CAUSE OF ACCIDENT
- PI Pilot Error
- ST Structural Failure
- WE Weather
- AP Airport
- MI Miscellaneous
- EN Engine Failure
- NR In collision but not responsible

NATURE OF ACCIDENT
- A Collision, full flight, with aircraft
- B Collision, full flight, with non-aircraft
- C Spin/stall eng. fail
- D Spin/stall engine OK
- E Forced Landing
- F Landing Accident
- G Take-off Accident
- H Taxiing Accident
- I Fire in Air
- N Structural Failure
- X Miscellaneous
- Y Indeterminate
- NR In collision but responsible

EDITORIALS

THE JOURNAL OF AIR LAW AND COMMERCE

Ever since Noah was commanded to take into the Ark "of every living thing two of every sort," and so "there went in two and two unto the Ark as God had commanded Noah," History illustrates how Law and Economics have been inseparably related. Economics furnishes the materials and the motives; Law supplies the mechanism for obtaining the results. It was necessary that each species of living thing should be preserved for new life after the impending Flood, but it was also necessary that the Ark be not overloaded. Hence the law of two by two.

However, in the original Federal Air Commerce Act of 1926 (a remarkable piece of well-planned advance legislation in a new field) there was no attempt to consider Economics. No data were available, no forecast possible. Safety alone was the objective. But in the last thirteen years, the extraordinary progress of aviation in all branches has brought to pass a radical change in the situation. Economics must now have its place in the legal scheme.

Hence in the new Federal Air Commerce Act of 1938 a joinder of Law and Economics made its appearance. The new provisions for a "certificate of convenience and necessity" throw into the picture the whole panorama of aeronautic economics. Henceforth the two form an inseparable field; for legal experience and legal dogmas alone cannot suffice, either in State law or in Federal law or in International law.

This is the change reflected in the new title for this "Journal of Air Law and Commerce."

This enlargement of scope will be assisted by admitting to the management of the School of Commerce of Northwestern University. The School of Commerce has installed courses in aeronautic economics. The personnel of its Faculty will contribute their knowledge and experience; and authoritative contributions will be invited from all competent sources.

This progressive change is but a phase that has long ago been passed through in the older agencies of transportation—rail and marine—and more recently in highway motor transportation. Fortunately it has come earlier in aeronautics than in the older activities. We may profit by their experience to undertake to solve

the great problems by advance thinking, rather than by the cruder trial and error method.

The Journal of Air Law and Commerce will endeavor earnestly to maintain its place as an organ for the most reliable information and authoritative discussion in this double and inseparable field.

J. H. WIGMORE.

ORGANIZATION OF THE AIR SAFETY BOARD*

The organization of the Air Safety Board, Civil Aeronautics Authority, was announced today by Colonel Sumpter Smith, Chairman of the Board. The Air Safety Board was created by the Civil Aeronautics Act of 1938 as an independent unit of the Civil Aeronautics Authority. The principal duties of the Air Safety Board as set forth in the Act are to:

1. Investigate accidents involving aircraft and report to the Authority the facts, conditions, and circumstances relating to each accident and the probable cause thereof. (Title VII—Sec. 702(a) (2).)
2. Make such recommendations to the Authority as, in its opinion, will tend to prevent similar accidents in the future. (Title VII—Sec. 702(a) (3).)
3. Make such reports and recommendations public in such form and manner as may be deemed by it to be in the public interest. (Title VII—Sec. 702(a) (4).)
4. Conduct investigations and necessary hearings in the performance of the above-enumerated duties. (Title VII—Sec. 702(c).)
5. Assist the Authority in ascertaining what will best tend to reduce or eliminate the possibility of, or recurrence of, accidents by investigating such complaints filed with the Authority or the Board, and by conducting such special studies and investigations, on matters pertaining to safety in air navigation and the prevention of accidents, as may be requested or approved by the Authority. (Title VII—Sec. 702(a) (5).)

These duties may be grouped under three headings: investigation, recommendation, and dissemination of information. For this reason the Board has divided the organization into three major divisions similar to this grouping of activities. In addition, being an independent unit, the Board has its own Executive Officer and Legal Adviser and has provided for a Technical Adviser on its main staff.

The three Divisions of the Board are the Investigation Division, the Recommendations Division and the Information and Publication Division. Each division consists of two closely related sections. Primarily, this grouping has been made for the purpose of pro-

* Taken from a Press Release of the Air Safety Board, dated November 23, 1938.

moting close coordination of the activities of the two associated sections.

The Investigation Division is the primary source of most of the material with which the Safety Board will work. It consists of the Investigation Section and the Examiners Section.

The Investigation Section is composed of a limited number of Air Safety Investigators whose duty it will be to investigate aircraft accidents. This section will have regional offices established so as to expedite the investigation of accidents. The Board expects to place one or more investigators in each office. For the sake of convenience, the location of these offices probably will coincide with those of the Civil Aeronautics Authority regional offices.

The Examiners Section consists of trained personnel, including attorneys who assist in the investigation of accidents, especially where public hearings are necessary, and in matters requiring legal interpretation.

The material gathered by the Investigation Division will be reviewed by the Recommendations Division where it will be completely analyzed and recommendations originated for final action by the Board.

The Analysis Section of the Recommendations Division is the only section the Board took over from the old Bureau of Air Commerce. The Analysis Section will handle the mass of the work submitted to the Recommendations Division, but when detailed technical analysis is desired, the data will be turned over to the Technical Section, the second section in the Recommendations Division.

The Technical Section consists of a group of technicians and engineers, each a specialist in some certain phase of aeronautics. Included in this section is an aeronautical, communications, power plant and airport engineer, a maintenance expert and a meteorologist.

Information emerging from the Recommendations Division, release of which is believed to be in the public interest, is turned over to the Information and Statistical Section of the Information and Publication Division for handling. In addition, this section will assist in the preparation of other accident information and statistics and information concerning the activities of the Air Safety Board. This section will work in cooperation with the Information Divisions of the Authority.

The Liaison Section is the other section of the Information and Publication Division. It will maintain liaison with industry and state organizations and with other Federal agencies for the purpose of

coordinating the activities of the Air Safety Board with these other organizations.

In making the announcement concerning the organization of the Air Safety Board, Colonel Smith made the following remarks:

"Our type of agency is a little new and I am afraid that there has been some misunderstanding concerning the exact place we occupy in the entire scheme of things. Actually, the organization is simple. Primarily, we have been established to assist the Civil Aeronautics Authority and the industry to promote greater safety in aviation through our studies and recommendations resulting from our investigation of accidents. We are not snoopers or policemen. Rather let us say we are independent investigators of accidents with a main objective of being of maximum assistance to the public, the industry and the Authority by obtaining the true facts of each accident.

"Our organization is compact; fortunately so because the personnel will of necessity have to work together very closely. The duties of the various sections are correlated and each will be called upon by the other to collaborate in the submission of reports and in other work. We believe that we have the combination that will work and one that can be expanded if necessary.

"The Air Safety Board considers its duty and responsibility to be the submission to the Civil Aeronautics Authority of only such reasonable and practicable recommendations as are necessary to insure safety in aviation, and believes it is the responsibility of the aviation industry not only to cooperate with the Air Safety Board, but to make such recommendations affecting its own interests as may be practicable and necessary to insure safety to the public.

"The Air Safety Board can only be a success if and when the industry, private flyers, and the public form a partnership with the Board for the common welfare."

STATE

Department Editors ..... GILL ROBB WILSON, ELWOOD B. COLE

PHILADELPHIA MEETING ON UNIFORM AERONAUTICAL CODE

Chairman William A. Schnader of the Committee on Uniform Aeronautical Code of the National Conference of Commissioners on Uniform State Laws reports a meeting in his office in Philadelphia on December 10, 1938, with representatives of the Lawyers' Committee of the Air Transport Association of America, the aviation insurance underwriters, and the Civil Aeronautics Authority. It was the first participation of the Authority in any meeting in connection with the proposed Uniform Aeronautical Code, and its representatives were Oswald Ryan, member of the Authority, and Samuel E. Gates, Chief, International Division. Those attending the meeting were very pleased that the Authority should send two men so singularly well equipped for the task in hand, and all were high in their praise of the attitude of these two gentlemen.

Mr. Ryan announced that just prior to the meeting the Authority had officially authorized an investigation of the desirability of federal legislation covering the absolute liability and compulsory insurance fields of the proposed Code, which has been limited to state legislation. Mr. Ryan expressed the belief that it would be desirable to withhold for the present the promulgation of the proposed Code and that the committees proposing the same (Commission on Uniform State Laws, American Bar Association and American Law Institute) cooperate with the Civil Aeronautics Authority in its study about to be made. Accordingly Chairman Schnader has announced his recommendation to the Executive Committee of the National Conference of Commissioners that the promulgation of the Code be postponed.

The December 10th conference seems to have been extremely helpful in the entire situation, especially with its enlarged representation of aviation interests. Another contribution to the study will be the replies of Nathan William MacChesney and John H. Wigmore, representing Chairman Schnader's group, to the Report of the Study Committee of the National Association of State Aviation Officials adopted at Omaha on October 15, 1938. See 9 Journal of Air Law 679. The same issue of the Journal was to carry the MacChesney-Wigmore replies, and there was an editorial announcement to this effect, but intervening illness prevented. Chairman Schnader now announces the replies will appear in an early issue, perhaps April.

STATE COORDINATION

The Civil Aeronautics Authority has announced the creation of a section for the coordination of state and federal aeronautical promotional and regulatory activities in the Division of Regulation and Enforcement. This action was recommended by the convention of the National Association of State

Aviation Officials at Omaha last October, is specifically provided for in the Civil Aeronautics Act, and will, it is believed by the Authority, eliminate conflict and litigation between state and federal agencies in aviation.

Elwood B. Cole, technical assistant to the Authority, has been assigned the duty of establishing this section. He was for six years Secretary of the Illinois Aeronautics Commission and has long been active in the affairs of the National Association of State Aviation Officials.

FEDERAL

INTERSTATE COMMERCE COMMISSION: AIR MAIL DOCKET NO. 4

National Airways, Inc., Rate Review 1934-1936

Submitted December 29, 1937 *Decided March 4, 1938*

Upon review of air-mail rates of compensation on route No. 27 no unreasonable profit found to have been derived or to be accruing for the period June 25, 1934 to April 30, 1936.

REPORT OF THE COMMISSION

DIVISION 3, COMMISSIONERS MCMANAMY, PORTER, AND MILLER

BY DIVISION 3:

No exceptions were filed to the tentative report of the examiner, which was served upon the Postmaster General and Boston-Maine Airways, Inc., (successor to National Airways, Inc.).

This is a proceeding under section 6(b) of the Air Mail Act of 1934, as amended, for review of the rates of compensation being paid to National Airways, Inc., holder of the contract for the transportation of air mail by airplane over air mail route No. 27, extending from Boston, Mass., in two sections, one to Bangor, Maine, 211 miles,[1] with seasonal service to Bar Harbor, Maine, 33 miles, and the other to Burlington, Vt., 191 miles, in order to determine whether any unreasonable profit was being derived or accruing therefrom.

Prior to the amendment of August 14, 1935, a similar review of the air mail rates of compensation being paid National had been instituted, based upon an audit of its books, accounts, and records for the period from the beginning of operations[2] to January 31, 1935. A tentative report therein was served on the carrier and the Postmaster General on July 1, 1935. The additional duties imposed by the amendment made necessary a further audit and a detailed examination of the carrier's expenditures and of the relation, if any, between it and its officers, stockholders, and employees on the one hand and its vendors and lessors on the other. Such further audit and examinations have been completed for the period from the beginning of operations to April 30, 1936, herein referred to as the audit period.[3] A report of the further audit of the carrier's accounts was furnished to the Postmaster General pursuant to the direction of section 10 of the act, and a copy thereof was transmitted to the carrier.

The carrier was originally incorporated in May, 1933, under the laws of Delaware as National Capital Air Terminals, Inc., with general

1. With alternate route of 212 miles.
2. Operations on the Burlington section began on June 25, and on the Bangor section on June 26, 1934.
3. For purposes of this discussion the audit period is separated into two parts, the early period herein referred to extending from the beginning of operations, June 25, 1934 to February 28, 1935, and the later period from March 1, 1935 to April 30, 1936.

offices at Portland, Maine, but later changed its name, and transferred its principal office to Boston. It entered into a temporary contract with the Postmaster General for the carriage of air mail over its route at a rate of 29.5 cents,[4] which contract was subsequently extended and then indefinitely continued.[5] In its initial investigation under the act to determine the fair and reasonable rates of mail compensation for the transportation of air mail by airplane over this route, the Commission fixed a base rate of 33-1/3 cents for 24,000 miles per month,[6] *Air Mail Compensation,* 206 I. C. C. 675, and by amendment of the act this basis became applicable as the rate of payment from March 1, 1935.

Capitalization and investment. The carrier's capitalization at the beginning of the mail operations consisted of 1,000 shares of stock without par value of which 310 shares had been issued for $100 per share. During the audit period 50 additional shares were issued to officers in lieu of accrued salaries on basis of book value of $43.44 per share as of October 31, 1934. The recorded consideration for all stock issued was $33,172, or an average of $92.14 per share. Of the outstanding stock, three of the directors, who were also officers, owned 100 shares each, and one employee 10 shares. The remaining shares were held by one other individual. No dividends were paid during the audit period, and no funded debt incurred.

The recorded investment in real property and equipment on June 30, 1934, was $31,864 representing cost of property to the carrier with accrued depreciation of $7,446. Current and accrued assets were $22,891, with liabilities of $32,945. Prepayments and other deferred debits were $1,525. On April 30, 1936, the carrier's recorded property investment was $31,579, with accrued depreciation of $21,460; current and accrued assets were $25,633,[7] and liabilities were $11,354. Prepayments and other deferred debits were $7,759,[8] and operating and insurance reserves were $12,870.

At the beginning of operations the carrier had five trimotored 10-passenger Stinson, Model T, planes, equipped with 215 H. P. Lycoming engines, purchased second-hand for $5,000 each. It later purchased five additional used engines. The planes were equipped with one-way radio and necessary instruments for night flying. One plane with its complement of three engines was retired from service during the audit period, leaving in use four planes and 17 engines. Six new radio receiving sets were bought, four in 1933 and two in 1934. Since January 1, 1936, the carrier has been equipping its planes and stations with two-way radio. Equipment of one plane was completed and the other three planes were being similarly equipped. Installation had been completed at Boston, Bangor, and Burlington, and was in progress at other points. The stations at Bangor, Augusta, Portland, and Concord were also being equipped with radio beacons.

Operations. The carrier commenced contract mail service with one round trip daily for mail and passengers on each section of the route. Ef-

4. Rates are stated in cents per airplane mile.
5. The contract required the carrier to furnish passenger facilities in addition to mail and express space on all schedules and to provide multi-motored equipment.
6. The rate was subject to certain provisions not here involved.
7. Material and supplies amounted to $5,376. This account, however, was overstated by $1,006 due to the inclusion of certain parts taken from planes and engines which were being reconditioned and which were already included in the investment account.
8. Of this amount $633 represented salvage value of plane and $844 of engine retired from service, and $5,006 was for capital expenditures in connection with the installation of aircraft and airway communication equipment.

fective January 1, 1936, an additional mail and passenger round trip, daily except Sundays and holidays, between Boston and Bangor was authorized by the Postmaster General. Beginning July 1, and extending through October, 1935, a daily round-trip schedule for mail and passengers was maintained between Bangor and Bar Harbor. Exclusive passenger service was maintained between Boston and Bangor from June 30 to September 16, 1934; between Burlington and Montreal, Canada, off-line, from June 25 to October 31, 1934; and between Boston and Burlington, in connection with the through trip to Montreal, from June 25 to September 16, 1934. All regular service after October 31, 1934, was on-line, and all schedules were for mail, passengers, and express.

National conducted its passenger operations in the name of the Boston-Maine Airways on the Bangor section and of the Central Vermont Airways on the Burlington section under contracts by which these companies leased for a fixed rental per airplane mile for the transportation of such persons and property, including express, as the lessees might desire, the entire capacity of National's planes, except space required for the mail. The Boston-Maine Airways was controlled jointly by the Boston & Maine and Maine Central Railroads, each of which owned 50 per cent of the stock, and the Central Vermont Airways was a wholly-controlled subsidiary of the Central Vermont Railway. During the audit period the provisions of these contracts were substantially similar except as to the stipulated rental. All expenses of operation of the air service were borne by National but the railroad subsidiaries paid one-half the cost of local telephone service and traffic forms, and National was permitted the use of railroad communication wires without charge. Other expenses connected with the sale of transportation, including advertising, agents' commissions, and similar items were borne by the railroad subsidiaries. The rental paid prior to March 1, 1935, varied, but thereafter and up to January 1, 1936, was 15.25 cents for mail-passenger service. When the additional mail schedule was authorized, payment was reduced to a rate of 13-1/3 cents.[9] Compensation for special flights or flights in second-section planes was on basis of the rate for exclusive-passenger service.

The total on-line mileage flown in the early period was 236,294 and in the succeeding 14 months to the end of the audit period, 360,693, of which mail service constituted 168,764 miles in the early period and 346,225 subsequent thereto. Exclusive on-line passenger service represented 61,637 miles flown in the early period. Ferry service constituted the remaining mileage. Pound-miles of mail were 1,906,458 and 4,099,226, respectively, with a monthly average number of pounds of 1,919.76 and 2,337.14.

Passenger traffic was seasonal. Except for March, 1936, when unusual conditions prevailed due to floods in New England, the highest revenue load

9. Under the contracts of March 1, 1935, subsequently extended, the lessees agreed to pay National "as compensation for actually completed flights on regular or delayed schedule" 32.5 cents per airplane mile for exclusive-passenger service and 32.5 cents per airplane mile for mail-passenger service, less one-half of such amount as was received for the mails, but not in excess of 15.25 cents per airplane mile, subject to the further provision that in the event scheduled air-mileage flown by National should in the aggregate exceed 1,100 miles per day the base rate should be decreased to 30 cents per plane mile for the period during which such mileage was flown. The mileage flown subsequent to January 1, 1936, did not exceed 1,100 miles per day, although compensation was computed on the base rate of 30 cents. Payments were approximately $2,000 less than they would have been under the written terms of the contract.

factors[10] were experienced in July, August, and September, 1935, when they constituted 38.78, 44.98, and 33.61 per cent, respectively. Under the agreement with the railroad subsidiaries passenger space was paid for regardless of use. Revenue passengers carried were 4,514 in the early portion of the audit period and 7,477 subsequent thereto, representing, respectively, 641,615 and 1,006,570 passenger-miles and a monthly average of 550.49 and 534.07 passengers. Passenger fares ranged from 5.90 to 14.71 cents per mile, with 10 per cent reduction for round-trip fares and special winter round-trip fares approximately 25 per cent lower than the regular fare.

Revenues and expenses. Revenues and expenses for on-line and off-line operations during the brief period when both services were maintained were not separately recorded in National Airways' accounts. For the purpose of reporting to the Postmaster General, revenues were apportioned on basis of revenue airplane miles flown in each service while expenses were distributed on basis of the total airplane miles flown in each service. Upon this basis the off-line operations resulted in a loss of $1,625.

Total on-line revenues in the early period were $95,024, of which $49,225, or 51.80 per cent, was from mail, while revenues from the railroad subsidiaries under the lease amounted to $43,365, or 45.64 per cent. Other revenues consisted of receipts from repair service and sale of fuel, amounting to $2,101, and $334 from special flights. On-line revenues in the later period totaled $172,197. This amount does not include $3,439 recorded by the carrier in its profit and loss account, which represents adjustment of mail pay between March 1 and June 30, 1935, to the basis fixed by the Commission in *Air-Mail Compensation, supra.* The mail revenue, including the retroactive payments, was $112,235, or 63.90 per cent of the total; $51,957, or 29.58 per cent, was received from the railroad subsidiaries; and $10,580, or 6.02 per cent, from repair service, sale of fuel and rents of buildings and other property. Receipts from special flights were $863. Revenues from the railroad subsidiaries in the two periods produced average returns per revenue passenger mile of 6.76 and 5.16 cents, respectively.

In the period between July 1, 1934 and February 28, 1935, the railroad subsidiaries received from the sale of airplane transportation an aggregate of $38,219, of which $36,710 was from passengers, $574 from excess baggage, $385 from express and $550 from charter flights. The amount paid National Airways was $9,275 in excess of the total receipts. In addition, the railroad subsidiaries bore other expenses customarily paid by air-transport companies totaling $8,795. Between March 1, 1935 and April 30, 1936, revenues of the railroad subsidiaries amounted to $56,876 consisting of receipts from passengers $55,341, baggage $315, express $835 and charter flights and miscellaneous $386. Revenues of the railroad subsidiaries exceeded the rental paid National Airways by $4,550. However, their total expenses exceeded their revenues by $9,536, representing a net loss. Passenger revenues of the railroad subsidiaries were equivalent to 5.72 cents per revenue passenger mile in the early period and 5.50 cents subsequent thereto.

Operating expenses for on-line operations totaled $99,708 in the early period, of which amount $29,470 was for maintenance; $53,179, conducting transportation; $16,066, general and administrative, and $993 was incurred in connection with the miscellaneous operations covering the sale of fuel,

10. Ratio of revenue passenger miles to seat miles.

repair service, special flights, etc. The net income from on-line operations in this period after deducting taxes assignable thereto was a deficit of $4,696. Nonoperating income and deductions therefrom increase the deficit to $5,115. There is included in operating expenses an item of $2,000, which was part of $4,828 for officers' salaries which were voluntarily relinquished by them. Operating expenses were credited with $2,828, but credit was not made for the $2,000 which was recorded in the profit and loss account. Correction of operating expenses to eliminate the amount of salaries relinquished would reduce the operating deficit to $2,696.

In the later period the on-line operating expenses aggregated $168,160, consisting of maintenance, $42,389; conducting transportation, $89,839; general and administrative, $29,882, and expense of miscellaneous operations in the sale of fuel, repair service, special flights, etc., $6,050. Income from operations after deducting taxes assignable thereto was $7,299 and net income after accounting for nonoperating items was $7,440.

It has been the carrier's practice to create a reserve to cover the estimated cost of repairs to planes, engines, and communication equipment, including a servicing charge, by means of accruals currently charged to operating expenses, and to debit the reserve with actual repairs as incurred. At the close of the fiscal year, June 30, 1935, the reserve balance of $7,337 was duly credited to operating expenses, but a balance of $5,155 on April 30, 1936, had not yet been adjusted. Recorded expenses in each period are excessive to the extent that they include charges for repairs over and above the amount actually incurred. After adjusting the overaccrual of the reserve and making such other adjustments as have been shown herein to be proper, the carrier's net income from on-line operations in the early period would be $2,565 and in the later period $7,193. Included in the net income for each period are the net receipts from special flights, incidental services, etc., amounting to $1,442 and $5,393, respectively.

The carrier provided reserves for depreciation of its planes and engines through a monthly charge of 2.5 cents per airplane mile flown, apportioned 1.25 cents each for planes and engines. Prior to October, 1934, arbitrary amounts were charged. For the early period depreciation charges on the planes and engines amounted to $6,037 and subsequent thereto, $9,057. The planes were built in the summer of 1930 and had been in service prior to their acquisition. Under the present rate applied to the depreciated net book value the service life of the planes would extend approximately 7 months, and of the engines 14 months, from the end of the audit period. The radio receiving sets purchased in 1933 and 1934 were fully depreciated as of February 28, 1935, at which time two sets had been in service approximately 19 months, and three others 17, 9, and 6 months, respectively. No depreciation charges on this equipment have been entered since that date although it was used until 1936 when replacements were made. Other depreciable property consisted of shop and fuel equipment depreciated on basis of service life of 5 years, motorized equipment on basis of 2 years, and furniture and fixtures 10 years.

A reserve to cover the possible loss of planes by accident is created through a monthly charge based on 1.25 cents per mile flown. On February 28, 1935, the reserve was approximately $2,954, and on April 30, 1936, $7,714. In addition to the foregoing reserve, National Airways carried insurance for public and passenger liability, property damage, workmen's compensa-

tion, employer's liability, and fire loss. The amounts charged for the respective periods were $4,843 and $6,831, of which $3,976 and $5,895 were incurred in the conduct of transportation.

Cost of fuel and oil in on-line operations amounted to $15,668 and $22,447 in the respective periods, representing 29.46 and 24.99 per cent of the total cost of conducting transportation. These supplies were purchased under contract at a price in the later period which, after deducting the discount and State taxes refundable,[11] approximated 14 cents per gallon for the gasoline and 40 cents per gallon plus 4 cents Federal tax for the oil.[12] In the early period the cost was slightly higher.

National leased its hangars, airport facilities, post office space, use of landing fields, etc. The annual rental paid approximated $8,000, the largest item of which was $5,790 for facilities at East Boston, Mass., covering hangar, use of airport, flying field, runways, etc. Part of this space was subleased to others, thereby reducing the annual rental to about $5,500 net.

The greatest portion of the expense for conducting transportation was incurred for wages and salaries which amouned to 45.27 per cent of the total in the early period and 49.82 per cent subsequent thereto. Flying personnel consisted of four regularly employed pilots and one relief pilot who, since January 1, 1935, were paid on basis of the National Labor Board scale. The average monthly salary of maintenance department employees was $136.56 and of airport employees, chiefly dispatchers, $93.92. It was the carrier's practice to pay a bonus to its employees at the end of the year usually upon basis of 10 per cent of the annual compensation.

National at the beginning of operations had four general officers and one general office employee on its pay roll, but the salary of one vice-president was discontinued on November 1, 1934. The carrier in the early period of its operation was not able to meet in full the salaries of its general officers and, as previously shown, amounts due them in the sum of $4,828 were voluntarily relinquished and stock was accepted in lieu of $2,172. General and administrative expenses amounted to $14,066 in the early period and $29,882 thereafter, of which amounts $11,602 and $26,597, respectively, represent salaries and expenses of the general officers.

Losses from nonmail schedules. The on-line nonmail schedules maintained by National during the early period of its operations were discontinued on September 17, 1934, and since that date only mail-passenger schedules have been maintained. National received from the railroad subsidiaries approximately 26 cents per mile as compensation for these nonmail schedules. Comparison of the cost of operations with costs at other times does not indicate that operating expenses were increased to an extent greater than the amount of direct aircraft operating expense occasioned thereby. Such expense at the time was approximately 23 cents per mile. It follows that gross receipts from such schedules exceeded the additional operating expenses incurred thereby, and that no losses resulted.

Interlocking relations. Investigation shows that none of the carrier's stockholders, officers, or employees owned or held, either for himself or for the account of any other person, any stock or other interest in any of the carrier's vendors or lessors; nor were any purchases made or rentals

11. Taxes refundable were in Massachusetts and Maine 3 cents; in New Hampshire 4 cents. The 4-cent tax in Vermont was not refundable.
12. Emergency purchases of gasoline at higher costs represented less than 5 per cent of the total quantity purchased.

paid from which its employees, officers, or stockholders appear to have benefited, either directly or indirectly.

Expenditures. In addition to the expenditures heretofore discussed, the carrier spent amounts approximately $24,000 for various services by others such as telephone and telegraph, light, heat and power, removing snow, etc. Small amounts were spent for travel and subsistence and for legal services. Examination of the purchases made by the carrier for supplies indicates that it generally availed itself of all discounts obtainable. The five planes, equipped with engines which it purchased second-hand for $5,000 each, had a list price new of $23,900 each. The engines, which were acquired at an average price of $383, had a list price new of $3,750 with 25 per cent discount to airlines. Rates paid for insurance were $0.0018 per airplane mile for public liability and property damage, and $0.003 per passenger mile for passenger liability, of which respective amounts the railroad subsidiaries bore $0.0003 and $0.0025 per airplane mile. The annual premium for aircraft hull insurance in the amount of $15,000 was $604.

Conclusion. It is apparent from the direction of the statute that in reviewing the rates of compensation to determine whether an unreasonable profit is resulting therefrom, the item which must be considered is the net income from operations, rather than net income. *Inter-Island Airways, Ltd., Rate Review 1936,* 225 I. C. C. 115. National's operations for the full audit period, giving effect to the adjustments heretofore pointed out, result in a net income from on-line operations of $9,758, of which $2,565 was earned in the early period when the contract rates were effective and $7,193 when the rates fixed by the Commission applied. Net income from operations include net receipts from the sale of fuel, repair service, and special flights, amounting to $1,442 and $5,393 for the respective periods. These services were independent of, and unrelated to, the service required by the contract with the Postmaster General and may properly be eliminated from consideration in determining whether an unreasonable profit resulted from the rates of mail compensation and the service connected therewith. If the rate fixed for mail compensation be reasonable, a carrier should not be penalized through its reduction merely because of profits not attributable to mail operations. *Inter-Island Airways, Ltd., Rate Review 1936, supra.* Net income from operations, including exclusive passenger service but excluding the incidental services heretofore described, was $1,123 in the early period. While the exclusive-passenger operations show a small profit over and above the direct aircraft operating expenses incurred therein, such service would result in a deficit if it were charged with a proportion of all operating expenses. Many items embraced in total expenses, however, were not affected by the maintenance of the exclusive passenger schedules. In the subsequent period, when no exclusive passenger service was operated, the carrier's net income from operations connected with the mail service was $1,800.

National's flying equipment was purchased at a low price. The net book value of real property and equipment on April 30, 1936, was $10,118.59, which was probably less than its actual value. An additional $5,006, recorded as deferred debits, represents capital expenditures for equipment. The carrier has also been able to date to function without any investment in airport facilities, such as offices, hangars, runways, landing fields, etc., all of which are rented. Negotiations were authorized by the carrier's directors

in April, 1936, looking to replacement of its flying units, which has since been accomplished and will result in a higher recorded investment. Allowance must also be given to the carrier's need for a reasonable amount of working capital.[13]

We find that no unreasonable profit was derived or accruing to National Airways, Inc., from the rate of compensation being paid for the transportation of air mail by airplane on route No. 27 for the period June 25, 1934 to April 30, 1936.

By the Commission, Division 3.

W. P. BARTEL,
Secretary.

(SEAL)

INTERSTATE COMMERCE COMMISSION: AIR MAIL DOCKET NO. 19

Postal Revenue Limitation on Air-Mail Rates

Submitted April 29, 1938 *Decided June 2, 1938*

Method of, and periods for, ascertainment of "anticipated postal revenue" from air mail, and relation of such revenue to aggregate cost of transportation of air mail by airplane for fiscal year ending June 30, 1939, determined.

Karl A. Crowley, Paul D. Page, Jr., and *William C. O'Brien,* for the Postmaster General.

Paul M. Godehn, Luther M. Walter, Gerald B. Brophy, William I. Denning, Pruitt & Grealis by *Hamilton O. Hale, A. Culbert, Francis D. Butler, H. Thomas Austern, J. Harvey Covington,* and *Howard C. Westwood,* for various air mail carriers.

Edward G. Hamilton, for Air Line Pilots Association.

REPORT OF THE COMMISSION

DIVISION 3, COMMISSIONERS MCMANAMY, MAHAFFIE, AND MILLER

BY DIVISION 3:

Exceptions were filed by the Postmaster General to the report proposed by the examiner and a reply was filed by the carriers.

By order of October 23, 1936, division 3 instituted on its own motion an investigation relating to that portion of section 6(e) of the Air Mail Act, as amended, which directs that the Commission, in fixing fair and reasonable rates of compensation under section 6(a) of the act,

> * * * shall fix and establish rates for each route which, in connection with the rates fixed by it for all other routes, shall be designed to keep the aggregate cost of the transportation of air mail on and after July 1, 1938, within the limits of the anticipated postal revenue therefrom.

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13. On April 30, 1936, cash on hand was $577; materials and supplies, $5,376, and special deposits representing bond deposited with the Postmaster General, $4,948.

The proceeding was instituted with a view to the entry of an order or orders fixing and determining the method or methods to be used for ascertaining the anticipated postal revenue from domestic air mail, the period or periods for which such ascertainment should be made, and the postal revenue from domestic air mail which may be anticipated by the application of such method or methods for such period or periods beginning July 1, 1938.

All air carriers engaged in the transportation of domestic air mail were made respondents to the proceeding and the Postmaster General was notified thereof. A hearing was held in December, 1936. A study of the record then made disclosed that there had not been sufficient experience in operation under the present air mail contracts to permit of the best compliance with this direction of section 6(e), and the proceeding was accordingly reopened for further hearing in February, 1938.

Method for ascertainment of revenue. The evidence concerning a method or methods for ascertaining the anticipated postal revenue centers largely upon the cost ascertainment system used by the Postmaster General for determining the revenues and costs of the various classes of postal service. Much of the carriers' evidence is directed to a criticism of the application of this system for the purpose of section 6(e).

The cost ascertainment system was established, after exhaustive investigation and study, under the authority of the act of February 28, 1925, and cost ascertainment reports have been issued for each fiscal year beginning with the fiscal year 1926.[1] Under this system the portion of total revenues and total expenses of the postal service assignable to individual classes of service are ascertained through an elaborate system of field tests and computations. As stated on page 2 of the report for the fiscal year 1937:

> No separate accounting was made, or could be made, that would assign directly the amount of revenue from these general sources produced by each class of mail, and the segregation to classes has therefore been accomplished by processes of ratio and proportion based upon tests and counts conducted at representative post offices for periods selected to cover a monthly cycle of postal business and to reflect seasonal variations.

Allocations between the several classes of mail of the amounts assignable to all mail matter are based upon ratios developed through certain physical counts. Out of a total of 45,233 domestic post offices in the fiscal year 1937, for example, 296, representing 45.64 per cent of the total postal revenues, were selected for the counts. Such counts were made during four selected "normal" periods, each of one week's duration. During that year the periods selected were September 21 to 27, 1936, November 30 to December 6, 1936, March 8 to 14, 1937, and June 14 to 20, 1937, both dates inclusive in each instance. In each of these periods the number of pieces of mail of each class originating at each of the 296 offices, and the amount of postage revenue thereon, were counted, and during the September period the total weight of the pieces in each class also was taken.

All post offices are divided into nine groups for the purpose of the cost

1. All fiscal years mentioned in this report end on June 30th of the year named.

ascertainment reports. The first group consists of the 15 largest post offices in the United States. The next five groups embrace the remaining Class I offices, and the last three groups cover second, third, and fourth class offices. First-class offices are those with total annual receipts of $40,000 or over. The 296 offices designated for count are selected from each of the nine groups, although there appears to be no fixed relation between the number of offices thus selected and the total number of offices in each group. The ratios developed through the counts at the offices in each group are applied to the total revenue from all offices in that group, and, from the revenue from each class of mail thus ascertained, ratios of revenue of each class to total revenues are developed.

The ratios thus derived for the fiscal year 1937, the latest year for which total figures are available, show that domestic air mail represented 1.911 per cent of the "net related revenue from ordinary postage" amounting to $650,939,021 shown in table 1 of the appendix to the cost ascertainment report.

When the cost ascertainment system was inaugurated no separate ratio for domestic air mail was developed, and it was not until 1929 that air mail was first segregated from domestic first-class mail for cost ascertainment purposes. The carriers contend that the method of such segregation has failed to give full credit to air mail for the revenues derived therefrom. While conceding that the selection of offices and periods for the cost ascertainment count may be proper for determination of relation between different classes of mail generally, they urge that the system is essentially a sampling method and is therefore entirely inadequate for accurate ascertainment of the revenue from so specialized and relatively so small a class as domestic air mail. They further urge that the volume of air mail is affected by many factors that do not apply to the other classes, and that the selection of offices for the purposes of the cost ascertainment system as a whole necessarily is not influenced by, and does not reflect, these factors peculiar to air mail. Of the 296 offices selected for count only 45 are air mail stops, whereas the total number of offices with air mail fields on December 31, 1937, was 211, of which 12 were second-class and all others were first-class offices. The total number of first and second-class offices on that date was 4,522, of which 168 were designated cost ascertainment offices.

The carriers further point out that mail to or from foreign countries bearing air-mail postage, as well as air mail to or from the possessions and Territories of the United States are not included in the count of domestic air mail, notwithstanding the fact that a considerable volume of such mail is transported between points in the United States by the domestic air-mail carriers over their routes. The Postmaster General's contention that no revenue is received from such mail is unsupported on the record. The carriers, on the other hand, contend that revenue therefrom is in fact received. Revenue from air mail transported on route No. 33 in the Hawaiian Islands also is not included in the count.[2]

Period for ascertainment. No evidence bearing directly upon the period for ascertainment was introduced. All of the evidence, however, was pre-

2. The expense of operating the domestic route in the Islands, however, is included in the cost of transportation of air mail shown in the exhibits of the Postmaster General.

sented with relation to fiscal years beginning July 1st. The appropriations for payment of the cost of air-mail transportation are made by fiscal years, and the act itself requires that the limitation here considered be made effecive at the beginning of a fiscal year.

Ascertainment of revenue for fiscal year 1939. Although the Postmaster General contends that the cost ascertainment figures are a true index of the amount of revenue accruing from air mail, he recognizes that they are the product of computations based upon past performance, and are not alone sufficient for the purposes of section 6(e). His witnesses point out, however, that the figures are used as a basis of various estimates of the future and urge that they should be so used here. On the assumption, based upon a cost ascertainment count made during the first two quarterly periods, that the volume of air mail during the fiscal year 1938 would be about 10-1/3 per cent greater than that during the preceding fiscal year, and that the volume during the fiscal year 1939 would reflect a further increase of about 7.5 per cent over 1938, the revenue from air mail for those two fiscal years is estimated at $13,725,000 and $14,750,000, respectively. Not only do the carriers question the sufficiency of the amounts so estimated, but one witness for the Postmaster General expressed the opinion that the increase in the volume of air mail would be much greater under present conditions than the foregoing percentages would indicate, and that the increases would be still greater if authority is given for the establishment of new routes and service or for further advertising which the carriers point out in their reply brief have since been authorized.

The 1938 figures were based upon regular cost ascertainment data obtained during September and December, 1937, from the 62 group A and group B reporting offices, which represent slightly more than 73.5 per cent of the total estimated domestic air-mail revenue for that fiscal year.

The estimated percentages of growth during the fiscal years 1938 and 1939 are materially less than the actual growth of 15 per cent, 47 per cent, and 28 per cent, respectively, during the fiscal years 1935, 1936, and 1937. Moreover, the first estimates prepared for departmental purposes relating to the fiscal years 1936 and 1937 were 45 per cent and 67.5 per cent, respectively, less than the revenues for those years finally developed through the cost ascertainment system.

Using the pound-miles of service performed, rather than the pounds of mail dispatched, the increase during the fiscal year 1938 was estimated by the Superintendent of Air Mail at about 11 per cent, and that during the fiscal year 1939 at a further increase of about 30 per cent, unless curtailment of service became necessary for some reason. Since the fiscal year 1935 the annual postage revenues as determined through the cost ascertainment system have been approximately 1 mill per pound mile. That ratio applied to the estimate of pound miles of service for the fiscal years 1938 and 1939 would result in revenues of approximately $14,000,000 and $18,000,000, respectively. While this ratio is not controlling, the experience of three immediately past years cannot lightly be disregarded.

Aggregate cost of transportation. The order instituting the proceeding did not, in terms, extend to the determination of aggregate cost of transportation, or of the necessity for any reduction in rates to keep such aggregate cost within the anticipated postal revenue; but it is obvious that these matters constitute the real objective of the statute and this proceeding,

and the parties recognized this by introducing evidence bearing upon cost of transportation.

At the outset it is necessary to consider the extent of the service which is to be included in the determination of the aggregate cost. The act directs that the Commission fix rates for each route which, in connection with the rates "fixed by it" for all other routes, shall be designed to keep the aggregate cost within the anticipated postal revenue. At present there are 37 domestic air-mail routes. The Commission has fixed rates for 33 of these routes. Contracts for the other four routes were awarded during the present fiscal year after competitive bidding.[3] By their terms these contracts will remain in effect for an initial period of 3 years, and the act contains no authority to adjust the rates during that period. These rates, of course, were not "fixed" by the Commission, and it is possible that the cost of transportation over these new routes should not be considered in determining the aggregate cost of transportation for the purposes of section 6(e). The provision requiring a relation between cost and postal revenues, however, was part of the original act which also restricted the Postmaster General from awarding contracts for routes in excess of an aggregate of 29,000 miles and from establishing schedules in excess of an annual aggregate of 40,000,000 airplane miles. At that time contracts had been awarded for substantially the entire amount of authorized route mileage, and in directing the Commission not only to fix fair and reasonable rates in lieu of the existing contract rates, but to fix those rates in such manner that compensation thereunder in the aggregate should be kept within the anticipated postal revenue by July 1, 1938, Congress apparently contemplated that a balance between the Government's income and outgo for all authorized service, including that compensated for at contract rates, would gradually be effected. By amendment of August 14, 1935, the limitations were increased to 32,000 route miles and 45,000,000 airplane miles. By amendment of January 18, 1938, these limitations were again increased to 35,000 and 52,000,000 miles, respectively, and by amendment of April 15, 1938, were again increased to 40,000 and 60,000,000 miles, respectively. If the service under the contracts for the four new routes awarded under these additional authorizations, or under any future contracts which may be similarly awarded, be disregarded in the application of the limitation of section 6(e), or, in other words, if contract rates be not included in the determination of aggregate costs, the apparent intent of Congress when the provision was enacted would be defeated. While the express terms of the act thus seem to be in conflict with its spirit there probably is no necessity for undertaking a positive construction of the language at this time. Operations over one of the four new routes had not yet been started by December 31, 1937, and the cost of transportation over the remaining three, because of exceptionally low bids, is shown to have been only about $201 during approximately the first quarter year of operation ended December 31, 1937. On the basis of the estimate of an average of 1 mill per pound-mile, previously mentioned, the service on these routes during that period would indicate a revenue of approximately $14,000.

Although the mandate to keep the aggregate cost within the anticipated

3. In May, 1938, bids were opened for 5 additional domestic air-mail routes, but contracts had not been awarded on the date of our decision in this proceeding.

postal revenue is directed to the establishment of rates by the Commission, it is obvious that cost of transportation can never be determined from a consideration of rates or service alone, because cost is the product of these two factors. Section 3(f) of the act gives the Postmaster General full authority to prescribe the number and frequency of schedules, the intermediate stops between termini of a route, and the time of departure of all planes carrying air mail; and authorizes him to utilize any scheduled passenger or express flight of a carrier whenever the needs of the service so require. Such authority has been exercised frequently in the past, and many changes have been made in the service required. Such changes undoubtedly will continue in the future. That section also authorizes the Postmaster General to compensate the carriers for special or extra or emergency trips in addition to regular schedules. Such compensation may be at the rate for regular schedules, or at a lesser rate if agreed to by the carrier and the Postmaster General.

While denying that responsibility for complying with this provision of section 6(e) rests upon him, as well as upon us, and contending that effect must be given to the provision solely through adjustment of rates to conform to changes in service which he is free to make within the limits of the specific provisions of the statute, the Postmaster General introduced estimates of the aggregate cost of the service for the fiscal years 1938 and 1939 which cover more than the payments to the air-mail carriers. Such payments are shown on the basis of the appropriation of $14,788,000 for contract air-mail service for the fiscal year 1938 and the amount of such appropriation, $15,800,000, estimated for the fiscal year 1939. These sums each include estimates of approximately $100,000 for air-mail administrative expense. One witness testified that whatever sum Congress appropriates for any fiscal year is for all practical purposes the limit of the expenditure for air mail, but that increases in the rates fixed by the Commission would lead to a request for a deficiency appropriation. Request for a deficiency appropriation would be equally necessary in the event that substantial increases in service were authorized by the Postmaster General. It is, therefore, impracticable to determine the aggregate cost of air-mail transportation solely from a consideration of the amount of appropriation initially estimated or initially granted by Congress for that purpose for any fiscal year.

The total costs submitted for the fiscal years 1938 and 1939 are $15,925,000 and $16,982,000, respectively. The additional amounts over the estimated payments to the carriers represent charges for "railroad transportation," "mail messenger service," "vehicle service," and "railway mail service." The Postmaster General contends that transportation of air mail includes all services performed from the time such mail leaves the post office at the point of origin until it arrives at the destination post office, and that the cost of transportation of air mail within the meaning of section 6(e) should include the cost of all such services. Although his witnesses showed the amounts resulting from apportionment to air mail of other post office expenses, such as salaries of postmasters, post office clerks, and letter carriers, and electric and cable car service, power boat service, and rural delivery service, they concede that those items are not properly includable in the "cost of transportation."

The amount shown for "railroad transportation" is the payment for

rail transportation of air mail between post offices and airports. The charges for "mail messenger service" and "vehicle service" represent the expense estimated to be incurred for other handling of mail between post offices and airports. The charge for "railway mail service" is the expense incurred by the railway mail service for maintaining air mail field post offices, including the clerical force engaged at such places.

The carriers strongly urge that these items are not part of the "aggregate cost of the transportation of air mail" and that the proper interpretation of that term is the aggregate of the amounts paid to each of them for the transportation of air mail by airplane and the services performed by them in connection therewith. There seems to be no reason to question that interpretation. The provision of section 6(e) here considered is part of a direction to the Commission to consider certain things "in fixing and determining the fair and reasonable rates of compensation for air-mail transportation * * *." As pointed out in *Air Mail Compensation,* 206 I. C. C. 675, this portion of section 6(e) has meaning only by relation to section 6(a) which alone contains the power for fixing fair and reasonable rates. Under the latter paragraph rates are to be fixed "for the transportation of air mail *by airplane* and the service connected therewith *over each air mail route* * * *." If the words "transportation of air mail," as used in section 6(e), be construed to comprehend more than "the transportation of air mail by airplane," as used in section 6(a), the two provisions would unnecessarily be brought into conflict with each other. The additional items which the Postmaster General urges should be included as cost of transportation are not included in the purposes of the appropriations estimated and authorized for transportation of air mail; instead, such costs are appropriated and paid for separately.

Conclusions. The conclusions as to the spread between the estimated cost of air-mail transportation and the anticipated postal revenue therefrom which may be drawn from the evidence introduced by the Postmaster General for the fiscal year 1939 range from a deficiency of $2,232,000 to an excess of $2,200,000.

The deficiencies are predicated upon estimates of the future said to be determined with relation to past results under the cost ascertainment system. While the deficiency of $2,232,000 represents the difference between the estimated revenues and the estimated cost of transportation, including the additional items which the Postmaster General urged should be considered, there is also a deficiency of $1,050,000 when the revenues are compared with the payments to the air-mail carriers with the addition only of the air-mail administrative expense. The apparent excess in revenues results from comparison of revenues determined from estimated pound-miles of service with similar estimates of transportation cost.

The cost ascertainment system reflects apportionments of both total revenues and total expenses of the postal service between the various classes of service based upon tests of actual experience. Ordinarily, therefore, that system should afford better estimates of future probabilities than would estimates resting solely upon anticipated increase in the pound-miles. The question thus resolves itself largely into one of the adequacy of the cost ascertainment system for the determination of the amount of revenue accruing from air mail with sufficient accuracy to be used as a limitation upon rate making. The Commission is not bound, however, to accept

unqualifiedly the findings of that system, or the conclusions drawn from its use, merely because the system has been used for other purposes with satisfactory results for a number of years and because no other method of arriving at the anticipated or actual postal revenues from air mail was suggested during the hearings.

The evidence discloses that the revenues used in determining the deficiencies were based upon a less rapid growth of service during the fiscal years 1938 and 1939, than the rate of growth upon which the expenses apparently are based. This, of course, places revenues and expenses on different bases. If the expenses were determined with relation to the same leveling-off of service as was used in determining revenues, the estimates made through use of the cost ascertainment system itself would show an excess of revenue.

If the growth in service, revenues, and expenses shown for the fiscal years 1935, 1936, and 1937 were projected at the same average rate, the revenues and expenses for the fiscal year 1939 would be approximately $17,500,000 and $14,800,,000, respectively, as compared with the cost ascertainment estimates of $13,725,000 and $15,800,000. The pound-miles of service would be approximately 18,500,000,000, which is substantially the same volume as used in determining the excess of $2,200,000 in revenues over expenses previously described.

When the experiences of the fiscal years 1935, 1936, and 1937 are considered in the light of revenues and costs per unit of service, the same results for the fiscal years 1938 and 1939 are indicated. The cost of 1.3 mills per pound-mile in 1935 dropped to 1.2 mills in 1936 and to 1 mill in 1937, while the revenue remained practically constant at 0.97 mills. The estimates for 1938 show a slight increase in cost and a slight decrease in revenue, per pound-mile. The estimates for 1939 show sharp decreases in both cost and revenue to 0.86 mills and 0.8 mills, respectively. No reason is given for this decrease in revenues per pound-mile, and if the revenue per pound-mile realized during the preceding fiscal years were maintained, it is apparent that there would be an excess in revenue over cost, even without considering a reduction in cost figures in proportion to the experience of the past.

The figures for the fiscal years 1935, 1936, and 1937 upon which the foregoing probabilities for the fiscal years 1938 and 1939 are based, must, of course, be considered in the light of the carriers' claims of inadequacy of the cost ascertainment system for present purposes. The efficacy of the system for the purposes of the postal service generally is not questioned. It undoubtedly serves in a highly satisfactory manner the purposes for which it was intended, when inaugurated, and it is of little moment in that connection whether the relation of air-mail revenue to total revenue be stated in terms of 1.911 per cent, the ratio shown in the cost ascertainment report for the fiscal year 1937, or in terms of 2 per cent. The difference of .09 of 1 per cent, however, is of material importance in connection with a limitation upon the rates to be paid for the transportation of air mail. That difference represents nearly $600,000 of the total "net related revenue from ordinary postage," and more than offsets the deficiency from air mail shown by the report for that year. An increase of that amount in the anticipated revenues obtained by projection of the revenue for the fiscal years 1935, 1936, and 1937 would bring the air-mail revenue for the fiscal

year 1939 to $18,100,000, or $2,300,000 more than the sum of the payments to the carriers plus the air-mail administrative expense estimated by the Postmaster General.

The record contains no adequate explanation of the manner in which the ratio of 1.911 per cent was obtained. It does show that in the actual count of all revenue and of air-mail revenue at all reporting first and second-class offices during the four count periods of the fiscal year 1937, air mail constituted 2.38 per cent of all revenue. On the other hand, the amount of revenue from all first and second-class offices apportioned to air mail in the cost ascertainment report for the entire year is only 2.02 per cent of the total revenues from those offices shown in that report. The total revenue at first and second-class offices constitutes slightly more than 91 per cent of such revenue at all offices.

Considerable variation also is noted between the ratio of air-mail revenue to total revenue as actually developed in the four count periods and as shown in the report for the year in respect of individual groups of offices. Out of the seven groups comprised in the first and second-class offices, the ratios for six groups as shown in the annual report are less than the ratios developed through the actual count. Since the periods of count are deliberately selected to avoid periods of unusually large mail volume, such as Christmas mail, it is reasonable to assume that no adjustment of the ratios developed through the actual count should be necessary to eliminate unusual conditions. This variation is especially noticeable in respect of the offices in groups A and B. These groups embrace first-class offices which have annual receipts of $1,000,000 and over, and which contribute more than 50 per cent of the total "net related revenue from ordinary postage" and nearly 75 per cent of total domestic air-mail revenue. The ratios of air-mail revenue to total revenue, as developed during the four actual count periods, were 2.396 for group A, and 3.755 per cent for group B, as compared with ratios of 2.271 and 2.802 per cent, respectively, in the cost ascertainment report for the year.

The cost ascertainment system does represent actual experience, although that experience constitutes only a small part of the total experience it purports to ascertain; but no system embracing actual experience can be totally disregarded, especially in the absence of a better method which reasonably can be applied. It is the use of the system for present purposes which is of greatest importance, and, in the absence of clear and compelling reasons to the contrary, it would appear that if the system were used in such manner as to give full weight to the trends of the past it reasonably would be possible to ascertain "anticipated postal revenue" from air mail with sufficient accuracy for the purposes of the act.

We find that "anticipated postal revenue" for the purposes of section 6(e) may reasonably be ascertained by giving due consideration to a projection at the same rate of progression of the revenues for preceding years ascertained through the cost ascertainment system; to a like projection of pound miles of air-mail service during the same preceding years; and to any prospective changes affecting the service; that the periods for which such revenues should be anticipated should be each fiscal year beginning July 1st; and that for the fiscal year beginning July 1, 1938, it appears that the anticipated postal revenue from air mail so ascertained will be in excess of the aggregate cost of transportation of air mail by airplane

and the services performed by the carriers in connection therewith, which may be anticipated by projecting at the same rate of progression the cost of transportation for preceding years.

These findings do not, of course, preclude further consideration of any reduction in rates necessary for compliance with this mandate of the law in the event of unforeseen decreases in the revenue or increase in the cost of such transportation; nor do they preclude the Postmaster General from advising the Commission of any changes in revenues or cost of transportation as in his opinion warrant reductions in rates.

By the Commission, Division 3.

W. P. BARTEL,
Secretary.

(SEAL)

INTERSTATE COMMERCE COMMISSION: AIR MAIL DOCKET NO. 23

Air Mail Rates for Route No. 8

Submitted May 3, 1938 *Decided June 1, 1938*

Rates of compensation for the transportation of air mail by airplane and the service connected therewith over air mail route No. 8, found not to have been fair and reasonable from and after May 28, 1937. Fair and reasonable rates determined and published.

A. Culbert for petitioner.
Karl A. Crowley and *William C. O'Brien* for the Postmaster General.

REPORT OF THE COMMISSION

DIVISION 3, COMMISSIONERS MCMANAMY, MAHAFFIE, AND MILLER

BY DIVISION 3:

No exceptions were filed to the report proposed by the examiner. Our conclusions agree with those recommended by him.

By petition filed May 28, 1937, under the provisions of section 6(a) of the Air Mail Act of 1934, as amended, Chicago and Southern Air Lines, Inc., operator of air-mail route No. 8, seeks reexamination of the fair and reasonable rate for the transportation of air mail over that route as determined and published in *Air Mail Compensation,* 206 I. C. C. 675. The Postmaster General filed an answer denying that the present rate is less than fair and reasonable, and also filed a petition, similar to petitions considered in earlier cases, requesting that no hearing be had in this case under section 6(a) until the Commission has completed an audit and investigation of the carrier's books and records under section 6(b), from the date of the beginning of service on route No. 8 up to and including the last complete month of service prior to the filing of this petition. It has been decided that where a record contains evidence sufficient to permit of a determination of fair and reasonable rates under section 6(a), the act not only warrants but directs that such action be taken without delay for performance of duties under other sections of the act. *Air Mail Rates for Route No. 31,* 214 I. C. C. 387. The petition in this case was denied. Prior to the hearing,

however, a tentative report of an audit and investigation under section 6(b) for the period from the beginning of operations on route No. 8 through May 31, 1936, was served on the Postmaster General and the carrier. No hearing in that proceeding was requested and it was decided on September 7, 1937, *Chicago & Southern Air Lines, Incorporated, Rate Reviews 1935-1936,* 223 I. C. C. 535, prior to the conclusion of the hearing in this case. No unreasonable profit was found to have been derived or accrued from the rate of compensation paid for the transportation of air mail.

The termini of this route are Chicago, Ill., and New Orleans, La. Intermediate stops are scheduled at Peoria and Springfield, Ill., St. Louis, Mo., Memphis, Tenn., and Greenwood and Jackson, Miss.

Petitioner's predecessor, Pacific Seaboard Air Lines, Inc., began mail operations over this route on June 3, 1934, under a temporary contract entered into on May 14, 1934. At the expiration of the initial period the contract was extended for 9 months, and on June 1, 1935, was indefinitely continued. The contract rate was 17.5 cents per mile for an initial unit of 20 cubic feet of air mail space, one cubic foot being considered the equivalent of 9 pounds of mail. This rate was paid up to March 1, 1935. Pursuant to the provisions of section 6(c) of the act, as amended August 14, 1935, compensation since that date has been paid at the rate fixed by the Commission in *Air Mail Compensation, supra.* Under that decision the rate for an average load of 300 pounds or less is 29 cents per mile, with a base mileage of 110,000 per month. Automatic changes in rates are provided for variations in mileage flown and increases in the load to more than an average of 300 pounds. The air-mail contract requires the carrier to furnish passenger facilities.

Capitalization. Pacific Seaboard Air Lines, Inc., was incorporated June 15, 1933, under the laws of California with an authorized capital stock of 50,000 shares, par value $1 per share. It operated an exclusive passenger and express service between San Francisco and Los Angeles, Calif., from June 25, 1933 to May 1, 1934. On June 3, 1934, when mail operations were started on route No. 8, the stock outstanding consisted of 35,000 shares, all owned by the president of the company. The name of the corporation was changed to Chicago and Southern Air Lines, Incorporated, on December 31, 1934. The present corporation, Chicago and Southern Air Lines, Inc., was organized under the laws of Delaware on December 30, 1935, with authority to issue 50,000 shares of $10 par value convertible preference stock and 300,000 shares of no par value common stock. A total of 35,000 shares of convertible preference stock and 100,100 shares of common stock have been issued. The carrier received $315,000 from the sale of preferred stock. The brokers who sold it to the public received a commission of $35,000 and 15,000 shares of the common stock. From time to time the president and certain other officers had made advances of cash and equipment to the old company. The indebtedness resulting therefrom amounted to $242,543 as of the date of formation of the new company. No liability for this indebtedness was assumed by the present company, but the remaining 85,100 shares of its outstanding common stock were issued to the president as voting trustee for himself and the other officers who had made the advances to the old company. All other liabilities of the old company were assumed, and its assets were received, by the present company.

At the beginning of mail service, the books reflected a paid-in surplus

of $79,413. The carrier charged against this amount not only the deficit accrued since the beginning of mail operations but also the loss from operations prior to that time. It also credited to profit and loss back mail pay for the period March 1, 1935 to June 30, 1935. The recorded deficit as of December 31, 1935, was $158,703. This deficit was not carried to the books of the new company, as the debts owed the officers of the California company were not assumed. In the balance sheet of the new company, before giving effect to the refinancing plan and the issuance of the preferred stock, the difference of $118,841 between the assets received, including $1 for the air-mail contract, franchises and goodwill, and the liabilities assumed, was set up by the new company as $25,000 paid-in surplus, and $93,841 capital stock liability on account of the 85,100 shares of stock issued to the president as voting trustee. The balance sheet, after giving effect to the refinancing plan, shows total assets and liabilities of $505,518, including the same amount for the air-mail contract, franchises and goodwill. An additional capital stock liability of $350,000 was set up for the 35,000 shares of preferred stock issued, but no increase in the liability for common stock was recorded, although the number of shares issued and outstanding was increased to 100,100. Total assets and liabilities at June 30, 1937, had decreased to $499,524. Capital stock liability for the 100,100 shares of common stock had been increased to $111,091 and the paid-in surplus of $25,000 had been converted into a deficit of $1,329.

Investment. When mail operations were started under the contract the flying equipment consisted of five Bellanca monoplanes and a Pitcairn biplane, and seven Wright engines. This equipment had been acquired while the carrier was conducting operations on the Pacific Coast prior to the time it was awarded the contract for route No. 8. The books covering operations on the mail route were opened as of June 1, 1934, and the property acquired during prior operations was set up therein at net book value. The investment in aircraft, engines, and aircraft communication equipment was shown in the accounts at that time as $21,000, $10,000 and $3,000, respectively. Another Bellanca plane was acquired shortly thereafter to replace one which had been damaged in an accident. In the latter part of 1934, and early in 1935, tri-motor Stinson planes were substituted for the Bellancas, and these, in turn, were replaced on April 30, 1936, by twin-engine Lockheed Electras. Four of these planes were secured on the latter date, one was destroyed in an accident on August 5, 1936, and replaced by another acquired on September 10, 1936. The carrier's investment in real property and equipment as of March 1, 1935, when the rates fixed by the Commission in *Air Mail Compensation, supra,* were made effective by section 6(c), was $69,776, and accrued depreciation was $14,219, leaving a net book value of $55,557. As the result of additions, betterments and retirements the investment in real property and equipment, depreciation and net book value as of June 1, 1937, were $280,411, $85,024, and $195,387, respectively.

The amounts included in the latter figures for flying equipment were $229,980, $71,893, and $158,087, respectively. At that time the carrier was using regularly in the operation of the route four Electra planes. One Stinson and one Pitcairn were used for training flying personnel. Another Electra was purchased on July 19, 1937, and is used as reserve equipment. The president and vice president also use their privately owned planes in educational flights, courtesy hops, etc., at no cost to the carrier except

servicing and storing. No repairs to these planes are contemplated except in case of damage while in service of the carrier.

Operations. The carrier began mail service on June 3, 1934, and passenger service on July 15, 1934. The territory traversed is generally low and level. There are extensive areas of swamp lands and open water on the southern end, and intense fogs are encountered frequently on most of the route. During winter months icing conditions along the northern portion render operations difficult and expensive. Stormy weather is sometimes experienced all along the route in an area approximately 200 miles in width, necessitating cancellation of schedules. There are few satisfactory emergency landing fields and during the winter most of them are unusable.

One round trip daily was scheduled between Chicago and New Orleans until April 1, 1935. Since that time two round trips have been scheduled, one in day flying and one at night. The day trip was not operated on Sundays and holidays until June 16, 1937. On June 1, 1937, the Postmaster General changed the schedules on the night trips so that the south bound plane arrives at New Orleans at 3:18 a. m., and the north bound plane reaches Chicago at 3:21 a. m. They formerly arrived at 11:38 p. m., and 11:35 p. m., respectively. From the evidence it would seem that these changes in schedule will cause more cancellations of scheduled flights because fog conditions are worst at about the time the planes are to reach their destinations. It is also shown that beginning with the change in the night schedules passenger traffic on both trips has been less than for the same months of the previous year. The reductions in passenger revenues for June and July of 1937, as compared with the same months for 1936, were $3,426.01, and $4,397.26, respectively. The change in night schedules also made it necessary to employ additional maintenance and operating personnel at several points on the route at additional salary cost of $875 per month.

The carrier has operated extra sections on its mail schedules on occasions when sufficient passenger traffic was available to make them profitable. The total mileage so flown from July 15, 1934 to May 31, 1937, was approximately 9,000 airplane miles. The carrier's annual report for the fiscal year ended June 30, 1937, shows only 1,289 miles flown in exclusive-passenger service. With the exception of this mileage the carrier did not operate any nonmail schedules until September 1, 1937. On the latter date a round trip passenger schedule was inaugurated over the route to off-set the loss in passenger traffic occasioned by the change in schedule as of June 1, 1937, discussed above. There is not sufficient evidence in the record to show whether this schedule will prove to be a profitable operation. No weight-credit service had been operated by the carrier as of the date of the hearing.

During the period June, 1934 to January, 1935, inclusive, when operations were conducted with Bellanca equipment, the carrier performed 394,033 miles in revenue service, which amounted to 90.9 per cent of the total miles scheduled. The mail transported averaged 48.6 pounds per mile flown. A total of 841 revenue passengers were carried 261,644 passenger miles, and the average number of passengers carried was .66 per mile flown. Of the seat miles operated 20.1 per cent were occupied by revenue passengers. During the period when Stinson equipment was used, from February, 1935 to April, 1936, inclusive, 1,275,042 miles were flown, resulting in a performance

of 89.2 per cent of the miles scheduled. The mail carried averaged 53.8 pounds per mile, and the revenue passengers carried totaled 6,363. Of the seat miles operated 27.5 per cent were occupied, and the revenue passengers averaged 1.8 per mile flown. During May, 1936 to May, 1937, inclusive, operations were conducted with Electra planes. The revenue miles flown totaled 1,204,785 which is 93.1 per cent of the miles scheduled. The mail transported averaged 65.8 pounds per mile. The revenue passengers carried totaled 12,122 and the average load was 3.8 passengers per mile flown. Of the seat miles operated, 47.6 per cent were occupied by revenue passengers.

During the period May 1, 1936 to April 30, 1937, when Lockheed Electras were operated, the passenger revenue per mile flown was 17.49 cents, whereas the expenditure for traffic and advertising amounted to 7.2 cents per mile. This expenditure was 4.1 per cent of the passenger revenue and was, in our opinion, excessive. In *Air Mail Compensation, supra,* traffic and advertising expenses for the air-mail contractors as a whole averaged 4.7 cents per mile.

Results of operation. After the carrier had introduced its evidence a continuance was granted to enable the Postmaster General to dispose of certain matters relating to observance of the uniform system of accounts for air-mail carriers prescribed by him. Many changes in the carrier's books were required, most of which related to small and relatively unimportant items and to transfers of charges and credits from one operating period to another.

The carrier's books, as thus corrected, show a net deficit from operations of $94,782 during the period June, 1934 to May, 1937, inclusive, including taxes assignable to operations. These corrections include elimination of monthly charges of $1,300 from November, 1936 to May, 1937, inclusive, accrued as salaries of the president and vice president, and a charge of $2,182.80 representing the cost of repairing a plane owned by the vice president, following an accident occurring off the air mail route. The carrier contends that these are proper items of expense to be considered in determining fair and reasonable mail rates.

The president and vice president have never received any salaries for services rendered to the carrier or its predecessor. Moreover, during most of the period of mail operations funds were advanced by these officers to cover operating deficits. In the reorganization of the corporation it was agreed that no salaries should be paid these officers until the carrier was on an "earning" basis. Both of these officers, however, devote their entire time to the service of the carrier, and any question of actual payment of salaries for those services under the underwriting agreement, or the propriety under the system of accounts of accruing such salaries on the books of the carrier, does not, of course, preclude us from taking them into consideration in determining reasonable rates.

In respect of the cost of repairing the plane owned by the vice president, the carrier contends that the flight on which the accident occurred was in the nature of a goodwill flight and should be considered as an advertisement of the services available to the public on the route, and that consequently the cost of repair constitutes a proper element for consideration in fixing reasonable rates. Whether this flight should be regarded as in the service of the carrier, it is apparent that the expense, which was incurred

in 1936, is one of a nonrecurring nature and of relative unimportance for the purpose of this proceeding.

The evidence relating to the net deficit from operations during the entire period as presented by the carrier shows that the losses were greatest during the early part of the period when Bellanca equipment was used. Following the change to Stinson equipment in 1934 and 1935 a decided increase in passenger revenues was experienced but operations were still conducted at a loss. Following the installation of Electra equipment during 1936 another marked increase in passenger revenues developed, and for the last year of the period under consideration a small profit was realized from operations without payment of salaries to the president or vice president.

The same deficit was presented by the Postmaster General in a manner to show the results for five separate periods, viz.: June 1 to June 30, 1934; July, 1934 to June, 1935; July, 1935 to December, 1935; January, 1936 to June, 1936, and July, 1936 to May, 1937, all inclusive. The net income from operations for these several periods are shown as $8,232.68,* $81,069.41,* $2,590.14, $17,989.20* and $9,919.22, respectively. The testimony of a witness for the Postmaster General indicates that the net income from operations shown for the period July, 1936 to May, 1937, includes accounting adjustments for transactions relating to prior periods. The record does not show the exact amount of all such adjustments, but it is contended by the carrier that they amount to approximately $1,200. Deduction of that amount from the net income of $9,900 shown by the Postmaster General would leave $8.700 as the income from operations during that period. In the latter figure, of course, no consideration is given to the payment of salaries to the president and vice president of the company. The amount accrued by the carrier during that period for such salaries was $9,100, and if this amount had been paid the results of operations during the period would have been a deficit.

The evidence submitted by the carrier indicates that operating expenses in the future will further exceed revenues, even with increases in revenues from sources other than mail transportation which may reasonably be anticipated from operation of the route. It is shown that wages of personnel will be higher than formerly and that additional employees must be secured; that prices of some materials and supplies have risen; that rentals and taxes, particularly social security taxes, an expense not contemplated when the present rates were fixed, will be increased. The change in the night round-trip schedule makes it unattractive to passengers. Passenger revenues show a decrease for the first 2 months following this change. In addition to the extra personnel expense of $875 per month resulting from the change in schedules, other increases in wages are required by an agreement between the carrier and its employees, effective August 1, 1937. Among other provisions the agreement calls for payment of time and a half for over-time which had not been paid theretofore.

The Postmaster General contends that the mail rate should not be increased and has submitted several analyses on a ton-mile basis, assuming that each passenger and his baggage weighs 200 pounds. In some of the computations the weight of the mail is assumed to be 300 pounds. The revenue per ton-mile from mail is much greater than from passengers. The

* Denotes deficit.

revenues per airplane mile in revenue service are also shown to be much greater from mail than from passengers. It is evident, however, from the record in this case that schedules are operated primarily for the purpose of handling air mail.

Conclusion. Since the present rates were prescribed by the Commission, operating and traffic conditions have made it necessary for the carrier to secure more expensive flying equipment. Direct competition is encountered from American Airlines, Inc., between Chicago and St. Louis, and between Chicago and Memphis by a circuitous route. Railroads also compete with all parts of the route for passenger and express traffic. While operating expenses have been increased by higher charges for depreciation on the more expensive equipment, the operating losses have been reduced due to the more favorable results from passenger operations.

We find:

1. That the rates of compensation for the transportation of air mail by airplane and the service connected therewith over route No. 8 were not fair and reasonable from and after May 28, 1937, the date of the filing of the petition herein;

2. That the fair and reasonable rates of compensation for the transportation of air mail by airplane and the service connected therewith over route No. 8 from and after May 28, 1937, the date of the petition herein, were, are, and will be for each airplane mile actually flown with mail, subject to the provisions of section 3(f) of the act, the rates for 300 pounds of mail or less determined by applying the provisions of the Commission's order in *Air Mail Compensation, supra,* as amended, to a base rate of 32 cents per airplane mile for a base mileage of 110,000 miles per month.

An appropriate order will be entered.

MAHAFFIE, *Commissioner,* concurring in part:

So far as rates for the future are concerned I agree. For the reasons stated in 216 I. C. C. 166, at page 191, I would not make the finding retroactive.

Order

At a session of the INTERSTATE COMMERCE COMMISSION, Division 3, held at its office in Washington, D. C., on the 1st day of June, A. D. 1938.

Air Mail Docket No. 23

Air Mail Rates for Route No. 8

Investigation of the matters and things involved in this proceeding having been made, and said division having, on the date hereof, made and filed a report containing its findings of fact and conclusions thereon, which report is hereby referred to and made a part hereof:

It is ordered, That the rates of compensation for the transportation of air mail by airplane and the service connected therewith over route No. 8 from and after May 28, 1937, the date of the petition herein, be, for each airplane mile actually flown with mail, subject to the provisions of section 3(f) of the Air Mail Act, as amended, the rates for 300 pounds of mail or less determined by applying the provisions of the Commission's order in Air Mail Compensation, 206 I. C. C. 675, as amended, to a base

rate of 32 cents per airplane mile for a base mileage of 110,000 miles per month.

By the Commission, division 3.

W. P. BARTEL,
Secretary.

(SEAL)

INTERSTATE COMMERCE COMMISSION: AIR MAIL DOCKET NO. 31

Western Air Express Corporation, Rate Review 1935-1936

Submitted November 22, 1937 *Decided January 22, 1938*

Upon review of air-mail rates of compensation being paid on route No. 13, no unreasonable profit found to have been derived or to be accruing therefrom to the carrier for the period May 8, 1934 to June 30, 1936.

REPORT OF THE COMMISSION

DIVISION 3, COMMISSIONERS MCMANAMY, PORTER, AND MILLER

BY DIVISION 3:

No exceptions were filed to the tentative report of the examiner, which was served upon the Postmaster General and Western Air Express Corporation, hereinafter called the carrier.

This is a proceeding under paragraph (b) of section 6 of the Air Mail Act of 1934, as amended, to renew the rates of compensation being paid to the carrier under its contract for the transportation of air mail by airplane and the service connected therewith over route No. 13, between Salt Lake City, Utah, and San Diego, Calif., a distance of about 780 miles, to determine whether any unreasonable profit is being derived or accruing therefrom.

On May 3, 1934, a temporary contract for a period of 3 months for air mail service over route No. 13 was awarded to the General Air Lines, Inc., and such service was inaugurated on May 8, 1934. At the end of the temporary period the contract was extended an additional 9 months, and effective January 1, 1935, was assigned to the carrier which has since operated the route. On May 8, 1935, the contract was indefinitely continued. General Air Lines, Inc., bid 24 cents for each mile flown with mail scheduled and authorized by the Postmaster General. This rate was applicable for an initial unit of 40 cubic feet of air-mail space, one cubic foot being considered the equivalent of 9 pounds of mail. Under date of March 11, 1935, the Commission found the fair and reasonable rate for the transportation of 300 pounds of air mail or less over this route to be 33-1/3 cents per airplane mile for a base of 45,000 miles, subject to the provisions of the order in *Air-Mail Compensation,* 206 I. C. C. 675, 724, requiring changes in the base rate for variations in the mileages flown and excess loads. Section 6(c), as amended August 14, 1935, made the rate so prescribed applicable as the rate of compensation from March 1, 1935.

An audit of the books, records, and accounts, and a review of the operations of the carrier and its predecessor for the period from the be-

ginning of operations under the contract to June 30, 1936, together with the investigations in other respects directed by section 6(b), have been made for the purposes of this proceeding. A report on the audit was made to the Postmaster General, as required by section 10.

Capitalization. The carrier was incorporated October 1, 1928, under the laws of Delaware, with an authorized capitalization of 500,000 shares of common stock of $10 par value, as a holding company for Western Air Express, Inc. The latter corporation was organized July 13, 1925, as an operating company, with an authorized common stock of 5,000 shares of $100 par value. On February 1, 1929, the carrier exchanged each 25 shares of its stock for one share of Western Air Express, Inc., stock. In order to meet the requirements of the Air Mail Act of 1934, General Air Lines was incorporated April 17, 1934, under the laws of Delaware with an authorized capital stock of 25,000 shares of $10 par value. This corporation was an operating company only and owned no equipment or other property, its only assets consisting of $100,000 cash, being the proceeds from the sale of 10,000 shares of its $10 par value stock to North American Aviation, Inc., on April 19, 1934. The latter sold this stock to the carrier at the same price on June 26, 1934. Upon the assignment of the mail contract, January 1, 1935, the carrier assumed the assets and liabilities of both General Air Lines and Western Air Express, Inc. General Air Lines was dissolved March 13, 1935, and the dissolution of Western Air Express, Inc., is pending.

Of the carrier's authorized capital stock, 234,102 shares were issued initially, some of which were subsequently reacquired and canceled. On July 31, 1935, the number of shares outstanding was 222,645. There was no change in the outstanding stock between that date and the close of the audit period. On December 27, 1934, when the carrier disposed of other air transport interests, the par value of its stock was reduced from $10 to $1 per share, and a liquidating cash dividend of $2,50 per share, made possible by the sale of certain securities, was paid January 31, 1935. There was no funded indebtedness during the audit period.

Investment. General Air Lines, Inc., owned no real property or flying equipment, but leased from Western Air Express, Inc., substantially all of the latter's real property and equipment at a rental of $7,000 per month. As of the date of the lease, May 5, 1934, the leased property and equipment had an original cost of $580,107 and a net book value of $140,583, of which $64,584 and $39,382, respectively, represented property located at off-line points not used in operations on the route. Much of the equipment on the route was obsolete and was sold during the term of the lease, the lessor purchasing and including in the lease four new Douglas DC-2 planes to take the place of units sold. The new planes, which represented an investment of $325,414, including engines, were leased and placed in service October 15, 1934. They were sold by the lessor to Eastern Air Lines on December 31, 1934. The carrier operated with leased equipment during most of the period prior to July 31, 1935. On that date its recorded investment in real property and equipment used in operations on the mail route was $329,639. Reserves for depreciation thereon amounted to $99,134, leaving a net book value of $230,505. As a result of additions, betterments, and retirements between August 1, 1935, and June 30, 1936, the ledger value of the property on the latter date was $387,900, the depreciation reserve $187,211, and the net book value, $200,689.

The planes leased at the beginning of mail operations by General Air Lines consisted of five F-10-A Fokkers, three Fokker Super-Universals, two Boeing 95's, a 40-B-4 Boeing, and one Stearman. These planes were manufactured in 1929, except the 40-B-4 Boeing and the Stearman which were manufactured in 1930. On May 5, 1934, the date of the lease, all of these planes, with the exception of the Stearman, were fully depreciated on the owning company's books, and on that date the net book value of aircraft costing $177,102 new was $2,492. Mail and passenger service was performed with the five F-10-A Fokkers until October 15, 1934, when the new Douglas transports were placed in service.

When the carrier began operations on January 1, 1935, it acquired from Western Air Express, Inc., the planes formerly leased to General Air Lines, except the Douglas planes, and in addition leased three used Boeing 247 planes from United Air Lines Transport Corporation at a monthly rental of $1,560 each. The Boeing planes were placed in service on January 5, 1935. The lease contained an option of purchase at book value on the date the planes were delivered, and provided that rentals paid should be applied on the purchase price. One plane was returned to the lessor on July 3, 1935. The two remaining planes, together with two others, were modernized by United as model 247-D and bought by the carrier during May, June, and July, 1935. In addition to the rentals already paid, amounting to $29,536, the carrier executed notes for $73,795 and entered the planes on its books at the latter amount. Their book value to United as of the dates of delivery was $104,470.

At the end of February, 1935, the carrier had sold all of the planes it acquired from Western Air Express, Inc., with the exception of the Stearman, receiving therefor $5,250. The Stearman plane was retained and used for instrument flying instruction. It was damaged in October, 1935, and in the settlement with the insurance company was repurchased for $300. It was rebuilt at a cost of $2,386.32 and was still in service on June 30, 1936. One of the Boeing planes used in regular service was accidentally destroyed on September 1, 1935. On September 5, 1935, a slightly used remodeled Boeing, 247-D, was purchased at a cost of $49,022. Thus on June 30, 1936, the carrier's flying equipment consisted of four Boeing 247-D's and one Stearman. The ledger value of this equipment, together with spare propellers, on that date was $143,540 and its net book value $87,658.78.

With the planes leased on May 5, 1934, were 36 Wasp and 8 Hornet engines, having a net book value of $36,384. All but one of these were sold at various dates between June 25, 1934, and February 28, 1935. A net loss of $6,833 was sustained in the disposition of these engines.

The carrier contracted with United to pay $2.15 per hour of operation for the use of each Wasp engine leased with the Boeing planes. The engine hours of use during the period of the lease aggregated 5,235. When the planes were purchased, the carrier also purchased from United 10 new geared Wasps for $69,649 cash and an allowance of $1,000 for each of the old engines purchased under the lease. Four additional geared Wasp engines were purchased subsequently and two were lost in the September accident. As of June 30, 1936, the ledger value of the carrier's engines was $89,197 and the net book value $44,665.

The airport at Las Vegas, Nev., represents an investment by the carrier of $13,257. Other principal items of owned property were furniture and

fixtures, lighting, hangar, and shop equipment. Buildings and improvements owned had a net book value on May 5, 1934, of $38,014, most of which consisted of a passenger station, water tower, garage, radio shack, wiring and electrical equipment, and field and runways at Las Vegas, and a hangar at Salt Lake City. The net book value of buildings and improvements at the end of the audit period was $27,441.

Operations. Route No. 13 is described in detail in ***Air-Mail Compensation, supra,*** page 739. From the beginning of mail operations to the end of the audit period one daily round trip in mail service was scheduled between Salt Lake City and San Diego and from February 15, 1935, an additional round trip daily, except Sundays and holidays, was scheduled between Salt Lake City and Los Angeles. Beginning March 15, 1936, the latter schedule was authorized daily. Effective April 1, 1936, a daily round trip in weight-credit service was authorized between Salt Lake City and San Diego, in addition to a daily weight-credit schedule[1] from San Diego to Los Angeles, and a similar schedule daily, except Sundays and holidays, from Los Angeles to San Diego.

The passenger and express service between Salt Lake City and Los Angeles coincided with the mail service between those points throughout the period, except that an additional daily round trip was operated exclusively for passengers and express from May through August, 1934, and from July through October, 1935, and the schedule authorized to carry mail daily, except Sundays and holidays, from February 15, 1935 to March 15, 1936, was flown on Sundays and holidays exclusively for passengers and express. Between Los Angeles and San Diego the passenger and express service coincided with the mail service until May, 1935, when a second daily round trip was inaugurated exclusively for passengers and express which was later authorized as weight-credit service. A third daily round trip between the latter points was added in June, 1935. No scheduled off-line operations were conducted during the period under review.

During the 10 months prior to March 1, 1935, 661,773 airplane miles were flown, of which 503,759 were in mail-passenger service, 155,398 in exclusive-passenger service, and 2,616 in weight-credit service. For the year beginning March 1, 1935, when the rates prescribed in ***Air-Mail Compensation, supra,*** became effective, the carrier flew 1,315,670 airplane miles, of which 984,162 were in mail-passenger service, 300,325 in exclusive-passenger service, and 31,183 in weight-credit service. For the 4 months from March 1, 1936 to June 30, 1936, its planes were flown 535,954 miles, of which 362,773 were in mail-passenger service, 6,114 in exclusive-passenger service, and 167,067 in weight-credit service. Under the instructions of the Postmaster General the carrier's reports classify and include weight-credit service with exclusive-passenger service.

The mail carried during the period prior to March 1, 1935, totaled 206,004 pounds, an average load of 268 pounds per airplane mile; during the succeeding 12-month period, 320,379 pounds, an average load per airplane mile of 189 pounds, and, during the period from March 1, 1936 to June 30, 1936, 154,324 pounds, an average load of 328 pounds. Revenue passengers totaled 5,320, 14,387, and 6,408, respectively, and the ratio of revenue-passenger miles to seat miles flown, or load factor, was 40 per cent for

1. For description on weight-credit schedules, see ***Air-Mail Compensation, supra,*** page 714.

the first two periods and 47 per cent for the succeeding 4-month period. The number of passengers per month increased substantially over the number carried during the corresponding month of the previous year. Express traffic was handled under contract with the Railway Express Agency.[2] Express carried during the 10 months prior to March 1, 1935, totaled 55,262 pounds; for the year ended February 29, 1936, 229,317 pounds, and for the 4 months ended June 30, 1936, 163,738 pounds. As in the case of passenger business, the volume of express carried has shown a more or less constant increase.

Revenues, expenses, and income. Operating revenues recorded during the period from beginning of mail operations to March 1, 1935, were $270,822, of which $112,425, or about 41.5 per cent, were from mail, and $130,002, or about 48.0 per cent, from passengers. For the first full year of operations under the mail rates fixed by the Commission, the operating revenues were $627,593, of which $315,868, or 50.3 per cent,, were from mail and $277,835, or 44.3 per cent, from passengers. For the last 4 months of the audit period the total revenue was $246,489; $109,675, or 44.5 per cent, from mail, and $121,123, or 49.1 per cent, from passengers.

Operating expenses recorded during the period prior to March 1, 1935, were $367,675; for the year ended February 29, 1936, $583,834, and for the 4 months ended June 30, 1936, $219,037. Thus, from operations there was a net deficit of $96,853 for the first period, and net revenue of $43,759 and $27,451, respectively, for the succeeding periods. Taking into consideration taxes assignable to operations and uncollectable revenues, the net result from operations becomes for the period prior to March 1, 1935, a deficit of $97,480; for the year ended February 29, 1936, an income of $39,626, and for the 4 months ended June 30, 1936, an income of $25,940.

The income for the year ended February 29, 1936, does not, however, reflect certain amounts arising out of the loss of the Boeing plane. The insurance recovery on this plane, $28,783, was less than the net book value of the plane, $34,925, at the time of its loss, including additions and betterments of $368. This difference of $6,142, which is less than the depreciation which would have accrued on the plane from that time to the end of the year, together with other items pertaining to final settlement of the insurance, were carried directly to profit and loss. If these items, aggregating $7,815, had been taken into consideration in connection with the operations during the year the net income from operations would have been $31,811.

One of the major items of expense reflected in the carrier's accounts is that of depreciation. Since General Air Lines owned no planes or engines it made no charges for depreciation on such property, nor did the carrier make such charges on the planes and engines taken over from Western Air Express, Inc., which had been fully depreciated. In the case of the Boeings purchased from United, depreciation was charged on the basis of a service life of 2 years from the date of purchase. These planes were then about 2 years old, making an over-all service life of about 4 years. Depreciation charges on the Boeing purchased direct from the manufacturer were computed on the basis of a service life of 3 years. Charges for depreciation on the geared Wasp engines, purchased new for use in the

2. For description of express service, see *Air-Mail Compensation*, 206 I. C. C. 687-688.

Boeings, were made on the basis of a service life of 3,000 flying hours. No allowance was made for salvage value in computing depreciation charges on any of the equipment. Depreciation charges on aircraft and airway communication equipment were at the annual rate of 50 and 33-1/3 per cent, respectively. The hangar at Salt Lake City is being depreciated over a 10-year period. Other depreciation charges were relatively unimportant. For the year ended February 29, 1936, the depreciation charges for aircraft aggregated $39,734.46 and for engines $29,953.65. Like charges for the 4 months ended June 30, 1936, were $20,403 and $15,085, respectively.

The carrier's operation with its Boeing planes have not been sufficiently extended to afford a basis for finding that its charges for depreciation are excessive. However, it should be pointed out that United, as of December 31, 1935, increased the estimated service life of its Boeings to 4 years with a salvage value of $5,000 and of its S1HI-G engines to 3.000 hours with a salvage value of $500 each.

Exclusive passenger operations. As heretofore shown, during most of the period here involved the carrier maintained exclusive passenger service, in addition to its regularly scheduled mail operations. The amount of passenger revenue received from this source has been estimated by applying to the total passenger revenue the ratio of exclusive passenger miles flown, including weight-credit service, to the total revenue passenger miles. Upon this basis, exclusive passenger revenues were determined to be $33,425 for the period prior to March 1, 1935, $74,265 for the year ended February 29, 1936, and $36,288 for the 4 months ended June 30, 1936. Revenues from express and excess baggage in such service were estimated on the basis of airplane miles flown to have been $2,909, $5,227, and $4,906 for the respective periods.

In *Air Mail Rates for Route No. 24, 222* I. C. C. 749, 758, we found that where the Postmaster General has duly authorized a mail schedule on a weight-credit basis, and mail is so carried, such schedule is not a nonmail schedule within the meaning of section 6(e) of the act. Eliminating the revenues from weight-credit schedules upon the basis of miles flown, the revenues from exclusive-passenger operations, including express and excess baggage, would be $36,310 for the period prior to March 1, 1935, $72,871 for the year ended February 29, 1936, and $1,497 for the last 4 months of the audit period.

Beginning July 1, 1935, the Postmaster General required the carrier to report separately for mail-passenger schedules and for exclusive-passenger schedules, direct aircraft operating expenses.[3] For the period prior to July 1, 1935, it is necessary to resort to an estimate based upon the ratio of exclusive-passenger miles flown to total mileage in order to approximate such costs. Eliminating the costs assignable to weight-credit schedules, the direct aircraft operating costs for the exclusive-passenger schedules during the period prior to March 1, 1935, would be about $37,001; for the year ended February 29, 1936, $81,857; and for the 4 months ended June 30, 1936, $1,688. Depreciation of aircraft, being computed upon a yearly basis, would accrue on the carrier's planes whether they were operated in passenger service or not, and there is no indication that the carrier would be

3. Direct aircraft operating expenses are the costs necessary to keep the plane in the air, and include such items as repairs and depreciation of aircraft, engines and communication equipment; wages of flying personnel; cost of fuel and oil; and passenger supplies and insurance.

able to render efficient mail service with fewer planes. Under the circumstances it would appear improper in this case to include aircraft depreciation as an additional operating expense occasioned by the exclusive passenger schedules. With this item eliminated, the costs for the respective periods would be reduced to about $36,569, $72,598 and $1,444, respectively. Upon this basis it is apparent that the revenues received from exclusive passenger schedules substantially equalled the additional expenses incurred in their operation.

Expenditures. A check of all vouchers, invoices, and expenditures from beginning of operations under the mail contract to the close of the audit period, June 30, 1936, discloses prices paid for goods and services have been in substantial agreement with market prices and at times have been less.

Major overhaul work of the carrier's Boeings was performed by United at the latter's shops. The engine overhaul was largely handled by Pacific Airmotive Company, the average cost being about $400 per engine.

The carrier's pay roll expenditures comprise one of the most important items of expense incurred in its operations. At the beginning of mail operations under the contract, General Air Lines employed 73 persons. On July 31, 1935, the number of employees had been increased to 86, and by the close of the audit period to 99. Of the latter number, 32 were included in the classification of flying personnel. Pilots and copilots were paid in accordance with the scale prescribed by the National Labor Board. Since January, 1935, flying crews have included stewardesses at salaries ranging from $100 to $140 each per month. For the period prior to March 1, 1935, the carrier's pay roll expenditures totaled $149,985; for the year ended February 29, 1936, $215,009, and for the 4 months ended June 30, 1936, $83,026. An analysis of the pay roll expenditures for June, 1936,, reveals that approximately 49 per cent was for flying personnel, 29 per cent for operations and maintenance, 6 per cent assignable to traffic, 7 per cent to general office, and 9 per cent to administrative personnel.

Gasoline purchased during the period cost $187,000. Delivered prices at Burbank, Calif., Las Vegas, and Salt Lake City, under contract ranged from 11.75 cents per gallon to 12.25 cents per gallon. Small quantities were purchased at various local points at prices ranging from 20.2 cents per gallon to 30 cents per gallon. The average price, including taxes, paid during the period May 8, 1934 to July 31, 1935, was 14.4 cents, and for the period August 1, 1935 to June 30, 1936, 14.6 cents per gallon. A State gasoline tax of 3 cents per gallon in California and 4 cents per gallon in Nevada is refundable. A similar tax of 4 cents per gallon in Utah is refundable only as to gasoline used outside the State. Oil purchases during the period totaled $13,286 at an average price of about 42 cents per gallon. Most oil was purchased under contract at 38.5 cents f.o.b. airports at Los Angeles, Las Vegas, and Salt Lake City.

All of the insurance coverage is carried with insurance companies. For the period from May 8, 1934 to July 31, 1935, recorded expenses for insurance totaled $35,955, and for the period from August 1, 1935 to June 30, 1936, $37,295. The per-mile cost of insurance is comparatively low, averaging less than 3 cents per mile. The charges for passenger liability insurance are unusually low.

Interlocking relations. The only registered holder of more than 5 per cent of the carrier's outstanding capital stock does not own the beneficial interest in any of this stock, but holds title to 78,988 shares and 45,000, respectively, for two individuals. One of these latter is the beneficial owner of 100 shares of the common stock of Union Pacific Railroad Company, a vendor of the carrier. With this exception neither individual had any interest in any of the carrier's vendors.

None of the officers or employees has any interest in any vendor or lessor of the carrier and it does not appear that any of its stockholders, officers, or employees benefited, either directly or indirectly in any of its purchases or rentals.

Conclusion. Section 6(b) of the act under which this proceeding is instituted, requires the Commission to examine annually the books, accounts, contracts, and entire business records of each holder of an air-mail contract in order to be assured that no unreasonable profits are derived or accruing from the mail rates. In complying with this mandate it is incumbent on the Commission to determine not only that the carrier's books show no excessive profits, but also that its accounts have been so maintained as accurately to reflect the results of operations, and that potential profits have not been diverted through collusive arrangements or dissipated by unwarranted expenditures or uneconomical operations.

In this proceeding it appears that the carrier's books fairly reflect the results of operations over this route, and that the line has been operated as economically as is consistent with safety and the development of potential traffic. The per-mile operating cost recorded at 44.38 cents for the year ended February 29, 1936, compares favorably with other airlines operating in the same general territory with similar equipment. There is no indication of collusion in the purchase of goods or services.

The act does not specify what constitutes an unreasonable profit, nor does it set forth a base to which earnings should be related in the determination of whether or not such profits were accrued. The carrier's property is devoted to the public service, and in keeping with the established law it is entitled to earn a reasonable return upon the fair value of such property. In this case no physical inventory or valuation of the property is available, and neither is required by the act. However, in view of the comparatively recent date at which most of the property was acquired, and of the fact that such property appears to be reasonably necessary to the carrier's operations, the net book value affords a basis upon which to estimate the rate of return. The net book value of the real property and equipment used in the carrier's operations as of July 31, 1935, was $230,505, and at the end of the audit period was $200,689. A reasonable allowance should be made for working capital. On June 30, 1936, the carrier had $75,987 cash on hand and material and supplies valued at $21,602; but these items are not necessarily conclusive of the carrier's reasonable needs for working capital. *Atlanta, B. & A. R. Co.*, 75 I. C. C. 645.

For the period prior to March 1, 1935, the carrier recorded a substantial operating deficit, and no adjustments therein are indicated. Obviously no unreasonable profits were accrued during this period. During the first full year of operations under the rate fixed by the Commission, the carrier recorded a net income from operations of $39,626. This, however, includes items not essentially a part of the transportation of the

mail and the services connected therewith. Excluding the profits resulting from the sale of fuel and oil, repair services performed for others, special flights, and other miscellaneous operations, and the loss incurred in connection with the Boeing plane not wholly covered by insurance, this amount is reduced to $26,624. Using an average of the net book values of real property and equipment as of July 31, 1935, and June 30, 1936, plus a reasonable allowance for working capital, the return would be about 8.7 per cent. An examination of operations during the last 4 months of the audit period indicates that the results of operations during this period were fairly comparable with the corresponding months of 1935.

While, as heretofore pointed out, the act does not specify what shall constitute an unreasonable profit, it must be presumed that the Congress did not intend to prohibit air-mail carriers from receiving a fair return upon the value of their property. What rate of return would be fair and reasonable in the case of air carriers has not been fixed by Congress or the courts. It appears well settled, however, that the rate of return to which owners of property devoted to public service are entitled depends upon a consideration of all of the circumstances and hazards of the business. The air-transport industry is a comparatively new field of endeavor. Its operations are restricted by weather conditions and other factors, and are subject to more violent financial uncertainties than those of transportation enterprises generally. Moreover, changes in operating conditions are frequently required by Governmental regulations and the rapid development of the art of air navigation. Obviously, a somewhat higher rate of return is warranted under such circumstances than that for well established and stabilized public service industries.

We find that no unreasonable profit is accruing to or being derived by Western Air Express Corporation, from the rate of compensation being paid for the transportation of air mail by airplane on route No. 13, for the period May 8, 1934 to June 30, 1936.

By the Commission, division 3.

W. P. BARTEL,
Secretary.

(SEAL)

INTERSTATE COMMERCE COMMISSION: AIR MAIL DOCKET NO. 33

National Airlines System, Rate Review 1935-1936

Submitted December 21, 1937 *Decided March 5, 1938*

Upon review of air mail rates of compensation being paid on route No. 31, no unreasonable profit found to have been derived or to be accruing therefrom for the period October 15, 1934 to June 30, 1936.

REPORT OF THE COMMISSION

DIVISION 3, COMMISSIONERS MCMANAMY, PORTER, AND MILLER

BY DIVISION 3:

No exceptions were filed to the tentative report of the examiner which was served upon the Postmaster General and National Airlines System.

This is a proceeding under paragraph (b) of section 6 of the Air Mail Act of 1934, as amended, to review the rates of compensation being paid to G. T. Baker, doing business as National Airlines System, hereinafter referred to as the carrier, for the transportation of air mail by airplane and the service connected therewith over route No. 31, between St. Petersburg and Jacksonville, Florida, to determine whether any unreasonable profit was being derived or accruing therefrom.

The route was advertised on May 5, 1934, for temporary air mail service between Daytona Beach and St. Petersburg, via Orlando, Lakeland and Tampa, Florida, a distance of 148 miles. An initial unit of 15 cubic feet of air mail space on one round trip daily, in day service, was to be furnished, and passenger and express facilities were required to be provided. In other respects the advertisement was similar to those described in *Air-Mail Compensation,* 206 I. C. C. 675.

A temporary contract for this service was executed on August 2, 1934, but operations did not begin until October 15, 1934. The temporary contract was extended from January 15 to October 14, 1935, and thereafter was indefinitely continued. D. K. Franklin and G. T. Baker, copartners doing business as National Airlines Taxi System, operated the route until March 1, 1935, since which date it has been operated by Baker. The route was temporarily extended 92 miles from Daytona Beach to Jacksonville on November 19, 1934, which extension was still effective at the close of the audit period. Beginning January 25, 1935, as a result of a resurvey by the Department of Commerce of distances flown over the route, mail pay was based upon 264 miles, of which 166 miles were between St. Petersburg and Daytona Beach and 98 miles between the latter point and Jacksonville. Effective July 1, 1935, authorized mail pay was based upon 262 miles by one course and 241 miles over an alternate course.

Section 6(b) of the original act directed us to review the rates of compensation being paid to the holder of each air mail contract, at least once in every calendar year from the date of the letting of such contract, in order to be assured that no unreasonable profit was resulting or accruing therefrom. For the purpose of complying with that direction, an audit of the books, records, and accounts and a review of the operations of the carrier from the beginning of operations under the contract to March 31, 1935, were made. The act was subsequently amended on August 14, 1935, materially adding to our duties in making these reviews. A further investigation was made pursuant to the directions of the amendments, and the period of the audit was extended to June 30, 1936.

Rates were initially fixed under section 6(a) of the act in *Air Mail Rates for Route No. 31,* 214 I. C. C. 387, the rate for the route as originally advertised being 30 cents per airplane mile, and as extended to Jacksonville 27 cents.

Investment. During the audit period the carrier had no investment in land, buildings, and improvements. Operations were started with two single-engine Ryan airplanes, and two Wasp, and one Wright, engines. The planes were recorded on the books at $8,000 and the engines at $4,200, but the carrier advises that the planes cost $3,430 and the engines $1,436. As of the date operations began the books show an investment of $2,000 in shop equipment, aircraft communication equipment, and furniture and fixtures.

On December 11, 1934, the carrier acquired another Wright engine at

a cost of $700. One Stinson U and one Stinson T planes and six Lycoming engines were acquired on March 23, 1935. The carrier advises that the planes cost $2,570 and $1,500, respectively, and the engines a total of $2,364. The carrier purchased another Lycoming engine in August, 1935, at a cost of $564. Another Stinson T plane and five more Lycoming engines were purchased in January, 1936, at costs said by the carrier to be $4,500 and $4,000, respectively. The two Ryan planes and one Wasp engine were retired in January, 1936. One of the Wright engines was retired in September, 1935, and the other in January, 1936.

All of the flying equipment used by the carrier during the audit period was purchased second hand, and the actual cost thereof cannot be ascertained from an examination of the carrier's records. The amount recorded on the books is stated by the carrier to be in excess of actual cost of the property. From the best information available it appears that the carrier's property investment at the beginning and at the end of the audit period was $6,866 and $23,096.90, respectively, representing actual cost, without accrued depreciation. The latter amount includes the cost of one Dodge automobile, recorded at $688. There is nothing to indicate that the carrier paid more than the fair market value at time of purchase for any of this property. New airplanes of the types acquired by the carrier sold about the time of acquisition at approximately the following list prices: Ryan B-5 with Wright engine $12,985, Ryan B-7 with Wasp engine $16,985, Stinson U with Lycoming engines $22,900, and Stinson T with Lycoming engines $23,900.

Material and supplies were carried on the books at $1,500 and $8,051, respectively, at the beginning and end of the audit period. The former figure is not supported by vouchers or any other data. An inventory of material and supplies, taken as of June 30, 1936, shows $10,660, which is $2,609 in excess of the ledger balance, but it is not shown that the unit prices used in the inventory were those paid for the property.

Operations. The carrier began mail service on October 15, 1934, and pasesnger service on December 22, 1934, on one round trip daily over the route. The route is described in *Air Mail Rates for Route No. 31, supra.* The carrier had no off-line operations, no exclusive nonmail service, and no weight-credit mail service. Intermediate stops were made at Tampa, Lakeland, Orlando, and Daytona Beach.

During the period from October 15, 1934 to March 1, 1935, when the rates fixed in *Air Mail Rates for Route No. 31, supra,* were made applicable as rates of payment by section 6(c) of the act, the carrier flew 57,830 revenue airplane miles, of which 27,209 miles were in exclusive mail service. It carried 12,301 pounds of mail, an average of 36.43 pounds per mile flown in mail service, and 94 revenue passengers. Revenue passenger miles flown were 19,312, and seat miles operated were 124,608. The revenue load factor was thus 15.57 per cent, and the average number of revenue passengers carried per mile flown in passenger service was 0.63. Corresponding figures for the remainder of the audit period were: 250,832 revenue airplane miles flown, all of which were in combined mail-passenger service; 61,557 pounds of mail, an average of 49.82 pounds per mile; 1,531 revenue passengers; 325,005 revenue passenger miles; 1,884,382 seat miles operated; a load factor of 17.25 per cent; and an average of 1.32 passengers per mile.

Operating revenues. During the period October 15, 1934 to March 1, 1935, the carrier recorded operating revenues in the amount of $11,266, of which the mail revenue, $9,612, and the passenger revenue, $1,276, constituted 85.32 per cent and 11.33 per cent, respectively. For the period March 1, 1935 to June 30, 1936, inclusive, operating revenues amounted to $85,261, of which the mail revenue, $67,673, and the passenger revenue, $15,465, constituted 79.37 per cent and 18.14 per cent, respectively. Passenger fares averaged 6.26 cents per passenger mile during the former period and 4.76 cents during the latter period. Express and excess baggage carried were small in volume and yielded revenues of $505 and $34, respectively, during the audit period.

Operating expenses. The carrier's recorded operating expenses during the periods October 15, 1934 to March 1, 1935, and from March 1, 1935 to June 30, 1936, were $13,600 and $86,918, or 23.46 cents and 33.74 cents per mile, respectively. The bulk of the operating expenses is made up of pay rolls, fuel for engines, and charges for depreciation and self-insurance. Of the pay roll expenditures, the largest item is the pay of two pilots at $500 each per month. The salaries paid other personnel are materially lower, and generally are less than those paid by other carriers for similar services.

Charges during the audit period for depreciation on equipment, furniture and fixtures amounted to $4,053. Most of this amount was for depreciation on planes and engines which was estimated at 50 cents each per flight hour. Included in this amount was $822 covering depreciation on the two planes and three engines retired from service in September, 1935 and January, 1936. The accounting for these retirements was not made until June, 1936, when $1,328 was charged to the appropriate retirement accounts and $8,000 was charged to the owner's account, this equipment thus being cleared from the property accounts, taking into consideration $750 realized from the sale of one of the engines. The total charges to operating expenses on account of the depreciation and retirement of this equipment were less than the total actual cost to the carrier, but include $241 in the retirement account for the engine sold, which had been set up on the books at $1,000 and on which depreciation charges of $9 had been accrued. This engine actually cost $342.

Self-insurance to cover anticipated losses from crash, fire, tornado, and theft was provided by establishment of an insurance reserve through periodic charges to operating expense. This reserve amounted to $7,437 for the period and was based on charges of 2.75 mills per passenger mile for passenger liability, 1.5 and 1.25 mills per airplane mile for public liability and property damage, respectively, and 28.83 per cent per annum of the cost of aircraft and engines for protection of the carrier's property investment. The charges for public protection do not appear to be higher than the usual cost of insurance covering such risks, but the charge for protection of property investment will, if continued, equal the cost of the property in approximately 3½ years, and is a higher rate than the charge for depreciation on the same equipment. The latter charge appears to be higher than is reasonably necessary for the purpose of meeting the risk of damage to equipment. No loss from any of the risks covered by these insurance charges occurred during the audit period.

Practically all of the gasoline and oil used by the carrier was pur-

chased from one company at average prices per gallon of 17.40 cents for gasoline and 70.89 cents for oil, both inclusive of tax. As of July 1, 1935, the State of Florida removed its tax of 7 cents on aviation gasoline. The City of Jacksonville imposes a tax of 2 cents per gallon on all gasoline handled in that city. It appears from consideration of the mileage flown and gasoline used as recorded in the carrier's books that the amount of gasoline used per mile on this route is somewhat less than is usually required for the type of equipment employed. It is probable that the carrier's records do not reveal the total amount of gasoline used during the audit period.

Net income. The carrier's books show a loss of $2,334 for the period prior to March 1, 1935, and a loss of $1,656 for the subsequent period. These amounts represent net operating loss, net loss from operations, and net loss, there being no transactions affecting items in the income account below net operating loss. Losses were experienced during every month of the audit period except one. Charges for insurance during the later period amounuted to $6,567, most of which was to cover losses on account of flying equipment. Any adjustment of the income account in connection with this item or with the retirement of equipment previously discussed, however, would not be important in the results shown.

Expenditures. The records of the carrier's expenditures do not permit of accurate determinations in respect of purchases or rents, some recorded expenditures, for example, not being identified definitely with any property, and others, on the other hand, not showing accurately the amounts paid for property known to have been used in the operation of the route. There is reason to believe that more material and supplies, particularly gasoline. have been used than the books show.

There is nothing, however, to indicate that any expenditures made in connection with the route have been unreasonably high or that there has been collusion of any kind in connection with such expenditures. It does not appear that any purchases have been made by the carrier from any person, firm, or corporation affiliated therewith.

Conclusions. This route has been operated from the beginning with secondhand flying equipment which was purchased at very low prices. The volume of traffic carried has been small and has remained fairly constant during the audit period. It is probable that with adjustment of the charges to operating expenses for insurance and retirements the route has been operated at a small profit. While it is impossible, because of the deficiencies in the carrier's records heretofore pointed out, to make any reasonable determination from the information available of the precise amount of net income which would be reflected by such adjustments, it is obvious that it would not be sufficiently large to amount to more than a reasonable return upon the carrier's investment.

We find that no unreasonable profit was resulting or accruing to G. T. Baker, doing business as National Airlines System, from the rate of compensation being paid for the transportation of air mail by airplane and the service connected therewith on route No. 31 for the period October 15, 1934 to June 30, 1936.

By the Commission, Division 3.

W. P. BARTEL,
Secetary.

(SEAL)

INTERSTATE COMMERCE COMMISSION: AIR MAIL DOCKET NO. 37

Delta Air Corporation, Rate Review 1937

Submitted January 4, 1938 *Decided January 21, 1938*

Upon review of air-mail rates of compensation being paid on route No. 24, no unreasonable profit found to have been derived or to be accruing therefrom to the carrier during the period April 1, 1936 to May 31, 1937.

REPORT OF THE COMMISSION

DIVISION 3, COMMISSIONERS MCMANAMY, PORTER, AND MILLER

BY DIVISION 3:

No exceptions were filed to the tentative report of the examiner, which was served upon the Postmaster General and Delta Air Corporation.

This is a proceeding under section 6(b) of the Air Mail Act of 1934, as amended, for review of the rates of compensation being paid to Delta Air Corporation holder of the contract for the transportation of air mail by airplane over Air Mail Route No. 24, between Charleston, S. C., and Dallas, Texas, in order to determine whether any unreasonable profit was being derived or accruing therefrom.

The present review is based upon an investigation which has been made as directed by section 6(b) for the period from April 1, 1936 to May 31, 1937, inclusive, hereinafter referred to as the audit period. A report of the audit of the carrier's accounts for this period was sent to the Postmaster General pursuant to the provisions of section 10 of the act, and a copy thereof was furnished to the carrier.

A like review was made while we had under consideration the carrier's petition under the provisions of section 6(a) of the act for redetermining the fair and reasonable rates of compensation for the transportation of air mail by airplane and the services connected therewith over this route. *Air Mail Rates for Route No. 24,* decided July 6, 1937, 222 I. C. C. 749. Although the record in that proceeding embraced the results of the carrier's operations through June 30, 1936, the section 6(b) review was based upon an examination and audit of the books, accounts, contracts, and entire business records for the period from July 4, 1934, the date of the beginning of mail operations over the route, to March 31, 1936, inclusive. We found that no unreasonable profit had been derived or was accruing from the rates of compensation which the carrier had received under its contract. We further found that the base rate of 28 cents per airplane mile applicable to a base of 63,000 miles per month upon which compensation was determined at the close of the period was not fair and reasonable from and after May 12, 1936, and fixed such fair and reasonable rate at 29 cents for a base mileage of 105,000 miles per month.

The carrier's corporate history was reviewed and its operations and investment described in detail in *Air Mail Rates for Route No. 24, supra.* Its dusting operations are not involved in this proceeding. The capital

stock outstanding has since been increased from $82,340 to $85,340. Only minor changes have occurred in the scheduled operations.[1]

Investment. The carrier's recorded investment in real property and equipment in use in route operations on May 31, 1937, was $305,481. Depreciation accruals against this property totaled $113,876 leaving a net book value of $191,605.

The principal additions to the carrier's property during the audit period included one Lockheed Electra plane, three Wright Whirlwind engines, and communication stations replacing the old facilities at Atlanta, Ga., and Dallas, the aggregate cost of which was $70,537. During the same period 6 Stinson, Model T, 2 Stearman and one Stinson, Model A, planes, 29 Lycoming engines, one two-way radio, and the replaced communication station facilities recorded at an aggregate original cost of $81,477 were retired. The carrier's flying equipment at the close of the audit period consisted of 4 Lockheed Electra, one Stinson A, and one Pitcairn planes and 12 Wright Whirlwind, 4 Lycoming and one Wright J-6-7, engines.

Results of operations. Although, as hereinbefore stated, our conclusion as to the absence of unreasonable profits contained in *Air Mail Rates for Route No. 24, supra,* was limited to the period prior to March 31, 1936, we found that, based on the evidence presented by the carrier and an audit made by representatives of the Postmaster General, a net deficit from operations of approximately $24,000 was incurred during the first 6 months of the calendar year 1936. Adjustment of this amount to reflect the additional mail pay due the carrier for service subsequent to May 12, 1936, under the Postmaster General's order of September 15, 1937, would reduce the deficit by less than $2,000. Consequently no unreasonable profit could have accrued to the carrier prior to the close of the fiscal year ended June 30, 1936. Further consideration of the carrier's operations prior to that date is, therefore, unnecessary.

For the remaining 11 months of the audit period, i. e., the period from July 1, 1936 to May 31, 1937, inclusive, the carrier's books record a net deficit from operations of $13,920. Nonoperating items are not here considered. *Inter-Island Airways Rate Review, 1936,* 225 I. C. C. 115.

Recorded revenues totaled $435,622 of which $282,534, or 64.86 per cent, represents mail compensation and $144,436, or 33.16 per cent, passenger revenue. The remainder included revenue from excess baggage, express, freight, fuel and oil sales and incidental services. Computation of mail compensation on the basis of the rate fixed in *Air Mail Rates for Route No. 24, supra,* would increase revenues as recorded by approximately $14,500.

During the 11 months' period the carrier flew a total of 1,095,254 airplane miles, of which 1,005,827 were in mail-pay service. Mail was carried on a weight-credit basis on all other scheduled miles flown during the period, with the exception of one trip from Atlanta to Birmingham which was flown in exclusive passenger service during the last 15 days of the period. The average mail load, including weight-credit service, was 84.76 pounds per airplane mile. During the period 10,344 revenue passengers

1. Effective September 18, 1936, the frequency of one authorized mail-pay schedule between Atlanta, Ga., and Dallas was changed from daily except Mondays and days after holidays to daily except Sundays and holidays. Effective May 17, 1937, the weight-credit authorization on a one-way trip from Atlanta to Birmingham, Ala., was canceled.

were carried 3,116,883 revenue passenger miles. No off-line service was operated.

Operating expenses for the 11 months' period as recorded aggregated $444,201, or 40.56 cents per mile flown. Of this amount $64,801, or 14.59 per cent, represented charges for depreciation, and $48,078, or 10.82 per cent, charges for repairs of aircraft and engines. The depreciation reserve was accrued through monthly charges computed on the straight-line method of depreciation based on service lives of 3 years for Stinson A and 4 years for Electra planes, and 3,000 flying hours for both Wright and Lycoming engines. The expenses incident to repairs of flying equipment were charged as incurred, and totaled $23,054, or 2.10 cents per mile flown, for aircraft, and $25,024, or 2.28 cents per mile flown, for engines.

With the exception of salaries, the cost of fuel for engines was the largest single item of expense incurred. The total expense thereof was $60,121, reflecting the use of 369,569 gallons at an average cost of 16.27 cents per gallon, or 5.49 cents per mile flown.

The total pay roll expense for the 11 months' period aggregated $188,396. During a representative month, February, 1937, this expense was $17,047, distributed $767 to administration; $1,053 to general offices; $6,900 to operations; $1,031 to traffic, and $7,296 to flying personnel. The latter amount was based on the scale of wages promulgated by the National Labor Relations Board. At the close of the period the carrier employed 115 persons in its airline operations, three of whom were part-time employees.

Insurance costs totaled $46,664, of which $45,444 was charged to conducting transportation, $1,198 to maintenance, and $23 to general and administrative expense. Of the expense charged to conducting transportation $32,390 represented aircraft, $11,684 passenger, and $1,370 flying personnel insurance.

Interlocking relations. Only three of the carrier's stockholders held in excess of 5 per cent of its outstanding capital stock. None of the purchases of supplies, services, or rentals was made for any vendor or lessor in whom the carrier, its major stockholders or its officer or employees had any interest; nor were any such purchases made or rentals paid from which any of the employees or stockholders appear to have benefited, either directly or indirectly.

Expenditures. During the audit period the carrier purchased goods and commodities and incurred liabilities for services at prices which appear to have been reasonable in comparison with prevailing prices as shown in price lists, catalogs, and specifications of manufacturers and distributors. However, lack of sufficient cash working capital has handicapped the carrier in the development of its purchasing policies and in certain instances has resulted in failure to obtain maximum trade discounts.

Salaries, fuel costs, and insurance premiums, previously discussed, represented the largest single item of expenditure. Flying equipment purchased during the audit period included one Lockheed Electra equipped with two Wright Whirlwind engines and a Pitcairn Mailwing. The Electra was purchased from the manufacturer equipped, at a total cost of $46,453, f.a.f.[2] El Paso, and the Pitcairn was acquired second-hand for $600. An additional Wright engine was purchased from the manufacturer at a cost of $4,318.

2. "Fly away field," i. e., delivered at the airport ready for flight.

Conclusion. As hereinbefore shown, the carrier's books recorded a net deficit from operations of $13,920 during the 11 months' period under consideration. This deficit would be increased to $15,013 if profits from the sale of fuel and repairs to aircraft of others were eliminated. As reviewed, operations appear to have been conducted efficiently and economically, operating expenses averaging over one per cent per mile less than the expenses during the preceding 6 months as developed at the hearing in *Air Mail Rates for Route No. 24, supra.* Furthermore, there is no indication that the books failed correctly to reflect the results of the carrier's operations. Adjustment of mail compensation in accordance with the applicable rate would still leave a net deficit of approximately $500 for the period. Exclusive passenger operations represented such a minor item that their effect on the net result of all operations for the period would be negligible.

We find that no unreasonable profit was resulting or accruing to Delta Air Corporation from the rate of compensation being paid under its contract for the transportation of air mail by airplane on route No. 24 during the period April 1, 1936 to May 31, 1937.

By the Commission, division 3.

W. P. BARTEL,
Secretary.

(SEAL)

INTERSTATE COMMERCE COMMISSION: AIR MAIL DOCKET NO. 39

Hanford Airlines, Inc.,-Hanfords Tri-State Airlines, Inc., Rate Review 1934-1937

Submitted May 19, 1938 *Decided June 14, 1938*

Upon review of air-mail rates of compensation on routes Nos. 16 and 26 no unreasonable profit found to have been derived or accrued for the period June 1, 1934 to June 30, 1937.

REPORT OF THE COMMISSION

DIVISION 3, COMMISSIONERS MCMANAMY, MAHAFFIE, AND MILLER

BY DIVISION 3:

No exceptions were filed to the tentative reports of the examiner, the first of which covered the period from beginning of operations to March 31, 1937, and the supplemental report, the period from April 1 to June 30, 1937. The reports have been consolidated.

This is a proceeding under section 6(b) of the Air Mail Act of 1934, as amended, for review of the rates of compensation being paid to Hanford Airlines, Inc., the present holder of the contract for the transportation of air mail by airplane over route No. 26 between Minneapolis, Minn., and Tulsa, Okla. (originally between St. Paul, Minn., and Kansas City, Mo.), and between Huron, S. Dak., and Bismarck-Mandan, N. Dak., in order to determine whether any unreasonable profit was being derived or accruing therefrom. The reviewer also covers the prior operations of route No. 26, and of

route No. 16 between Chicago, Ill., and Pembina, N. Dak., by predecessor companies.

Audits and investigations in the particulars directed by section 6(b) were made for the periods from the beginning of operations[1] to June 30, 1937, on route No. 26, and to December 31, 1934, on route No. 16, except that the audit for route No. 26 does not cover the period from April 1 to June 30, 1936. The initial audit for the latter route covered operations from the beginning of mail service to March 31, 1936. Subsequently the records of the contractor, Hanfords Tri-State Airlines, Inc., were destroyed by fire, so that no audit could be made for the period from April 1 to June 30, 1936, when Hanford Airlines took over the operation of the route. To overcome this deficiency to the extent deemed necessary for the purposes of this proceeding the audit report has been supplemented by the record of operations taken from the carrier's annual report to the Postmaster General for the year ended June 30, 1936. Reports of the audits were sent to the Postmaster General pursuant to the provisions of section 10 of the act, and copies thereof were furnished to Hanford Airlines.

Contracts for the carriage of air mail by airplane were made by the Postmaster General on route No. 16 with Hanfords Tri-State Airlines, Incorporated, for a bid rate of 19.6 cents,[2] and on route No. 26 with its successor, Hanfords Tri-State Airlines, Inc., for a bid rate of 18.9 cents. These contracts were originally for a period of 3 months but were later extended for 9 months and thereafter indefinitely continued. In addition to space for mail the carriers were required to furnish passenger and express facilities. The Postmaster General subsequently approved transfer of the air-mail contract on route No. 16 to Northwest Airlines, Inc., effective January 1, 1935, and of the air-mail contract on route No. 26 to Hanford Airlines, effective July 1, 1936. In its initial investigation under section 6(a) of the act the Commission fixed rates of 25 cents for a base of 45,000 miles per month on route No. 16, and 32 cents for a base of 50,000 miles per month on route No. 26.[3] The amendatory act of August 14, 1935, made these rates applicable as rates of payment from March 1, 1935.

Capitalization and investment. Hanford Airlines was incorporated under the laws of Delaware on May 6, 1936, with an authorized capital stock of 400,000 shares of $1 per value, of which 168,137 shares were issued to Hanfords Tri-State Airlines, Inc., in purchase of its properties, including the air-mail contract on route No. 26. The latter company, a Delaware corporation, was organized July 2, 1934, and was the successor under reorganization of Hanfords Tri-State Airlines, Incorporated, an Iowa corporation, acquiring all of the latter's physical property and the air-mail contract on route No. 16. An additional 225,000 shares were issued by Hanford Airlines at par for cash during the audit period. Of the stock outstanding on June 30, 1937, 56.85 per cent was held by the executive vice-president of Hanford Airlines and 42.77 by the Delaware corporation. Of the stock held by the latter, 74.14 per cent was for account of the president of Hanford Airlines, and 16.06 and 9.80 per cent for two other stockholders, respectively. No dividends have been paid on any of the stock issues.

1. Mail operations began July 3, 1934, on route No. 26 and June 1, 1934, on route no. 16.
2. Rates are stated in cents per airplane mile.
3. The rates were subject to increases or decreases accordingly as the monthly mileage flown decreased or increased more than 10 per cent of the base mileage.

The properties of the Iowa corporation which were taken over by the Delaware corporation consisted of various assets amounting to $306,203 and liabilities of $61,083, including accrued depreciation of $37,177,—a net book value of $245,120. Other liabilities consisting of $332,889 of long term debt held or controlled largely by the president of the Iowa corporation were not assumed. Payment for the properties was made through an issue of 13,800 shares of stock of $25 par value, amounting to $345,000. Assets and liabilities were recorded by the Delaware corporation on its books at the amounts at which they had been taken over from the Iowa corporation. The difference between the net book value of the properties and the amount of capital stock issued in payment thereof was accounted for by a charge of $100,000 as goodwill, representing pioneering cost of the air mail routes, and a credit to profit and loss of $120.

On March 31, 1936, the Delaware corporation's recorded investment in real property and equipment was $241,403 and in miscellaneous physical property, $13,474, with accrued depreciation of $78,161. Current and accrued assets were $74,701 and liabilities, $121,956, with goodwill of $100,000 and prepayments of $2,208. Operating, insurance, and other reserves were $16,929. The mail contract for route No. 16 was sold to Northwest Airlines for $48,000, represented by 12 notes of $4,000 each, maturing serially. These notes were discounted for $46,737 and the proceeds credited to profit and loss. No physical property was transferred under the sale. The annual report to the Postmaster General for the fiscal year ended June 30, 1936, shows a recorded investment in real property and equipment of $242,466 and in miscellaneous physical property of $13,483, with accrued depreciation of $88,374. Operating reserves had been reduced to $8,914. The only other material change was in current liabilities which on that date amounted to $116,113.

Flying units acquired by the Delaware corporation from its predecessor consisted of 13 planes and 24 engines, having a net book value of $96,263. This equipment, comprising a miscellany of types and kinds, including single engine, twin engine, and tri-motored planes, was manufactured on various dates in 1929, 1930, and 1931. Through additions and retirements the carrier at the end of March, 1936, had in use 9 planes and 25 engines, having a recorded net book value of $49,305.

Hanford Airlines commenced its operation of route No. 26 with a recorded investment in real property and equipment of $61,243, representing the depreciated book value of property taken over from the Delaware corporation; one share of Aeronautical Radio stock, $10; current and accrued assets, exclusive of cash, $9,740, consisting chiefly of materials and supplies; prepayments, $269, and goodwill of $100,000 as pioneering cost on route No. 26. In addition to these items covering assets purchased from the Delaware corporation, cash of $175,000, representing sale of stock at par, was recorded. The only liabilities of the former company assumed by Hanford Airlines were for accounts and wages payable amounting to $3,126. Recorded capital stock liability was $343,137.

Recorded investment in real property and equipment at the end of the 1937 fiscal year was $225,310,[4] with accrued depreciation of $49,109.[5] Cur-

4. There is included an item of $682 for the cost of replacement of nose cowl on plane, which was properly chargeable to operating expense. An amount of $176 for pilot's salary in delivery of new plane was charged to

rent and accrued assets were $108,887[6] and liabilities were $98,399, the latter consisting chiefly of three notes maturing serially by months for an aggregate of $18,175, balance of purchase price on a new Electra plane, and a 6-month note of $50,000 due November 1, 1937, the proceeds of which were to supply working capital. Operating and insurance reserves were $5,955. Goodwill had been increased to $150,000 and capital surplus credited with $50,000. Prepayments amounted to $3,242. Deferred debits included $3,206 remaining from expenses incurred in the organization of the carrier which were being amortized through operating expenses. A profit and loss debit balance of $105,944 was shown. To provide additional working capital 50,000 shares of capital stock were issued at par for cash, making the capital stock liability $393,137 on June 30, 1937.

Planes and engines taken over from the Delaware corporation consisted of two-trimotored Fords, four Lockheed Vegas, and 13 Wasp engines, having an aggregate net book value of $22,710. Ten additional Wasps and one Jacobs engine were acquired, together with three Lockheed Electras, two new and the other second-hand, and one Waco plane with engine for which Hanford Airlines traded in part payment a similar Waco plane and engine purchased from its vice-president. Of the equipment taken over from the Delaware corporation, the two Fords and one of the Vega planes and eight of the Wasp engines were retired. At the end of the audit period Hanford Airlines had on hand three Vega planes and five Wasp engines taken over from the Delaware corporation and in addition three Electras, the Waco plane used as a training ship, and the 11 engines purchased by it, representing a net book value of $130,645.

Operations. During the period of operation of route No. 16 two round-trip schedules daily in mail and passenger service were maintained, one each between Chicago and Pembina, N. Dak., and between Chicago and St. Paul, Minn. Off-line service was operated between Pembina and Winnipeg, Manitoba, Canada.

On route No. 26 service between July 3, 1934 and August 31, 1934, consisted of three round-trip schedules daily in mail and passenger service, one each between St. Paul and Omaha; between Omaha and Kansas City; and between Bismarck-Mandan and Sioux Falls, S. Dak. Effective September 1, 1934, an additional round-trip schedule daily for mail and passengers was authorized by the Postmaster General between Omaha and Kansas City.[7] Effective September 1, 1936, the St. Paul-Omaha schedule was changed to a daily round trip between Minneapolis and Kansas City;

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operating expense which amount was part of the cost of the plane and should have been charged to the investment account.

5. Accrued depreciation was $29,046 on planes and $12,042 on engines, leaving net book values of $95,352 and $35,293 respectively.

6. Including cash, $42,448; materials and supplies, $24,888, and special deposits, principally bonds deposited with the Postmaster General, $11,838.

7. An agreement between the Delaware corporation and Rapid Air Lines Corporation, copy of which was filed with the Postmaster General, provided that Rapid Air Lines was to perform the mail service under the contract for the portion of the route between Omaha and Kansas City, to provide the equipment, and to bear the expenses of operation. Prior to the award of the mail contract the route had been operated under such an arrangement. Because of the Postmaster General's requirement of multimotored equipment between Omaha and Kansas City, the Rapid Air Lines was to be paid by the Delaware corporation one and one-third times the mail rate and was to retain passenger and incidental revenues. The amount actually paid by the Delaware corporation totaled $20,465, based upon 24.7 cents per mile, except that for the additional schedule established in September, 1934, payments were based on the mail rate of 18.9 cents per mile. Actual operations by Rapid Air Lines began July 20, 1934, and were discontinued by it on January 16, 1935.

one of the two schedules between Omaha and Kansas City was discontinued and the other became a weight-credit trip. A mail-passenger schedule was established daily between Kansas City and Tulsa which was operated on Sundays and holidays in weight-credit service. On May 17, 1937, an additional weight-credit mail schedule daily between Minneapolis and Tulsa was inaugurated. Effective February 5, 1937, the Bismarck-Mandan-Sioux Falls schedule was changed to a round-trip daily between Bismarck-Mandan and Huron, connecting at that point instead of Sioux Falls with the schedules between Minneapolis and Kansas City. No exclusive passenger schedule other than the off-line service to Winnipeg was operated.

Revenues, expenses, and income. Operations of the Iowa corporation for the month of June, 1934, resulted in a recorded net deficit on route No. 16 of $2,376. Operating revenues were $16,164; operating expenses, $18,300; and net deficit from operations, $2,211. Non-operating items accounted for the difference between the deficit from operations and the net deficit.

For the period from July 1, 1934 to June 30, 1935, operations of the Delaware corporation resulted in a recorded net deficit of $186,668, of which $118,842 accrued on route No. 26 and $67,825 on route No. 16. Recorded net deficit from operations was $67,903 on route No. 16 and $118,138 on route No. 26. There are included on route No. 26 uncollectible items of $330 applicable to the period prior to the mail contract. For the fiscal year ended June 30, 1936, the net deficit from operations on route No. 26 reported to the Postmaster General was $21,430. Nonoperating income and deductions from gross income increased the deficit to $24,227.

Recorded revenues and expenses of the Delaware corporation for the fiscal year ended June 30, 1935, were $90,227 and $157,880, respectively, on route No. 16 and $151,115 and $268,177, respectively, on route No. 26. For the year ended June 30, 1936, revenues on route No. 26 were $283,700 and expenses were $304,129. The separation of revenues and expenses between the routes for the period from July 1 to December 31, 1934, inclusive, was made on the basis of miles flown. Revenues of the Delaware corporation on route No. 26, however, do not include $30,442 representing back mail pay to the basis of the rates found reasonable by the Commission and made applicable by the amendatory act. The carrier credited such revenue to profit and loss. Other adjustments indicated to be proper for that route relate to operating expenses and include $1,637, duplication of salaries, adjusted through profit and loss instead of operating expenses; $5,913 for unpaid salaries which were subsequently canceled and credited to profit and loss; and $500 for salaries charged to profit and loss rather than operating expenses. These adjustments would result in a net deficit from operations on route No. 26 of $101,745, which, with the deficit from operations of $67,903 on route No. 16, would give an adjusted total deficit for the Delaware corporation of $169,649.

Certain additional adjustments of operating expenses are indicated by reason of other items recorded as profit and loss. No allocation of these items as between the two routes was made by the carrier. Such adjustments would not exceed, approximately, credits of $4,500 and charges of $5,500. The Delaware corporation also recorded as profit and loss the net proceeds amounting approximately to $4,000 from sale of equipment. It is apparent, however, that the net result of the Delaware corporation's

operations would not be affected materially by reason of these adjustments.

The Delaware corporation advanced various amounts of money to its first president, which were recorded as accounts receivable although a portion thereof was for traveling and other expenses incurred in behalf of the carrier. Repayments resulted in a recorded net amount due the carrier on June 30, 1935, of $11,727. Since no salary had been paid to that officer, the carrier charged the net balance due to salaries and expenses of general and administrative officers by retroactive journal entries for each month of the fiscal year ended June 30, 1935.

Cost to the Delaware corporation of conducting transportation during the audit period was $69,919 on route No. 16 and $250,543 on route No. 26, representing 44.28 and 49.95 per cent, respectively, of the total operating expenses. Of the total cost of conducting transportation, salaries and expenses of flying personnel accounted for 36.26 per cent on route No. 16 and 28.49 per cent on route No. 26,[8] while gasoline and oil represented 29.78 per cent on route No. 16 and 28.14 per cent on route No. 26. The largest of the remaining items of expense in this group was for rents of fields and other property on route No. 26 which amounted to $43,407, equal to 17.33 per cent of the total.[9] An examination of the carrier's records showed expenditures for gasoline, oil, and grease of $103,921 and for leases and rentals of $27,185. The average cost of the gasoline, including Federal and State taxes, and handling and freight charges was 12.3 cents per gallon. Prices for lubricating oil ranged from 40 to 54 cents per gallon. The principal items composing the rental charge were for hangar-passenger station building and gasoline facilities at Kansas City, $350 per month, and hangar at Omaha and field and hangar at Sioux Falls for $225 and $300 per month, respectively. Under an arrangement with the United Air Lines Corporation that carrier furnished ticket service and passenger accommodationos at Omaha for a monthly rental of $150. Ticket and dispatching services were furnished by Northwest Airlines at Minneapolis and St. Paul for $180 per month. Joint or consolidated ticket offices were maintained with other air line operators at Kansas City and Minneapolis.

A reserve for overhaul of flying equipment was accumulated by the Delaware corporation by means of monthly charges to operating expenses based originally upon a rate of $2 per flight hour on planes and $1.50 on engines. Subsequently the monthly charge for both planes and engines was reduced to 50 cents per hour. The balance in the operating reserves on March 31, 1936, totaled $16,429, including reserves accumulated for special audit expense and inventory adjustments amounting to $990. On June 30, 1936, the reserves amounted to $8,914. The carrier also maintained a reserve of $500 for bad debts.

Charges for depreciation and retirements by the Delaware corporation were $25,349 on route No. 16 and $47,378 on route No. 26, equivalent to 16.05 and 9.44 per cent, respectively, of total operating expenses. Depreciation charges were based upon 6,000 flying hours for planes and 3,000 hours for engines. The bases on other property varied prior to January 1, 1936, when the carrier assigned a service life of 10 years for communication equipment; 16 years for the hangar at Stevens, S. Dak., and with a few ex-

8. Beginning in September, 1934, flying personnel was paid on basis of the wage scale fixed by the National Labor Board.
9. This included the payment to Rapid Air Lines.

ceptions, 10 years' service life on the remainder. No allowance was made in any instance for salvage value.

Hanford Airlines recorded operating revenues of $308,311 and expenses of $411,097 for its operations from July 1, 1936 to June 30, 1937. Taxes assignable to operations were $4,055 and uncollectable revenues $179, resulting in a net deficit from operations of $107,020.[10] Nonoperating income and deductions produce a net deficit of $106,660. Profit and loss items resulting from the sale of equipment reduced and recorded net deficit to $105,944. Taxes accrued included amounts for social security, old age benefit, unemployment and personal taxes. The balance in the reserve on June 30, 1937, amounted to $2,816. Operating reserves were $5,955. While the Uniform System of Accounts prescribed by the Postmaster General required operating reserves to be cleared annually, except for certain specified reasons, it is apparent that the deficit from operations would not be affected materially if operating expenses were credited with the balance in the reserves.

Mail revenues amounted to $220,139 and constituted 71.40 per cent of the total. Passenger revenues, including receipts from baggage, amounted to $81,676, equivalent to 26.49 per cent of the total.[11] Revenues from express, freight, and incidental services comprised the remainder.

Of the total recorded operating expenses of Hanford Airlines, 30.21 per cent was incurred for maintenance, 50.23 per cent for conducting transportation, 10.78 per cent for traffic and advertising, .06 per cent for miscellaneous operations, and 8.72 per cent for general and administrative expenses. The principal items of expense for maintenance covered depreciation and repairs. Depreciation charges amounted to $52,781, made up of depreciation on aircraft, $30,535; engines, $13,490; airway and aircraft communication equipment, $6,130; and all other depreciable property, $2,625. Planes acquired from the Delaware corporation were assigned an additional service life of 2 years, while the engines were depreciated on basis of a further service life of 3,500 hours at $1.25 per hour. Of the three Lockheed Electras, the two purchased new were given 4 years, and the one acquired from Northwest Airlines, which at that time had been in use 2½ years, was given an additional service life of 2 years. The Waco plane used as a training ship was depreciated on basis of 21 months' use, and its engine at a rate of 60 cents per hour with a service life of 2,400 hours. The Wasp engines bought during the audit period were depreciated at a rate of $1.18, based on 4,000 hours of service. Communication equipment, including that acquired from the Delaware corporation, was depreciated on basis of a service life of 4 years. Service lives assigned to other property were: Buildings and improvements on land not owned, hangar and shop equipment, fuel, water, oil, and gas storage and distribution equipment, and furniture and fixtures, 10 years; motorized vehicles, 3 years; improvements to build-

10. Adjustments of expenses and capital accounts to include items heretofore pointed out would produce expenses of $411,603 and deficit of $107,526 from operations.

11. Mileage flown in mail-passenger service was 703,432 and in weight-credit service 169,881. The increase in weight-credit service in the last 3 months of the audit period was very substantial, representing approximately 50 per cent of mail-pay service. Revenue passengers transported were 6,704, representing 1,631,929 revenue passenger miles. Seat miles operated were 7,664,730 with a revenue load factor of 21.29 per cent. The highest revenue load factor was 32.55 in July, 1936, and the lowest 9.83 in January, 1937. Revenue per passenger mile was 5 cents.

ings not owned and other equipment, 5 years. No allowance was made in any instance for salvage or residual value, although two planes were sold for $1,748 in excess of their net book value. Other equipment was sold at amounts aggregating $1,053 less than the net book value. Charges for repairs of flying units and communication equipment totaled $52,814 including amounts accrued for a reserve for major overhauls.[12] At the end of the audit period there was a balance in the reserve of $3,990. The carrier also by means of a monthly charge of $50 maintains a reserve for audit expenses, as well as a reserve for inventory adjustment due to obsolescence of supplies, based upon 7 per cent of the cost. As of June 30, 1937, these reserves were $550 and $1,415, respectively.

The largest portion of expense in connection with the conduct of transportation was for salaries of flying personnel, airport and hangar employees, and airway communication operators and asistants, totaling $88,988. Wages of flying personnel have been based upon the National Labor Board scale.

Expense for gasoline used in flying operations amounted to $43,119, equivalent to 4.54 cents per airplane mile flown. The average price per gallon was 16.2 cents, including freight, taxes, State inspection fee, and in some cases a handling charge.[13] Oil was purchased at a contract price of 40 or 42 cents per gallon plus Federal tax of 4 cents. A small quantity of emergency purchases increased the average cost of 47.9 cents per gallon.

Insurance charged to the conduct of transportation amounted to $22,241, equivalent to 2.34 cents per airplane mile flown. Other insurance in connection with maintenance and general and administrative expenses totaled $3,643. The largest portion of the insurance expense was incurred for crash, fire, theft, tornado, hull, and land damage. Insurance for passenger liability and for public liability and property damage was based upon rates of 0.2 cent per passenger mile and 0.16 cent per airplane mile, respectively. Other insurance covered airport liability, hangars, buildings and contents, automobile liability, and burglary insurance.

Expense for traffic and advertising amounted to $44,317, of which $24,829 was expended for advertising and outside agencies. The latter amount represented 30.39 per cent of the total passenger revenue.[14]

General and administrative expenses on Hanford Airlines were $35,865. The principal items were for salaries and expenses of general officers and general office employees, including amounts incurred in connection with the moving of offices from Sioux City, Iowa, to Kansas City, which aggregated $27,878. Other expenses in this group were nominal.

The total pay roll of Hanford Airlines for June, 1937, was $18,767. This, however, includes $550 representing increase from $450 to $500 per month in the salary paid the general manager which was made retroactive to July 1, 1936. Only two of the general officers, a vice-president, who also served as general manager, and the secretary-treasurer, received salaries during the full audit period. Amounts paid them for regular salary

12. The reserve was created by charges ranging from 50 cents to $1 per hour of flying for the different planes and from 80 cents to $1.75 per hour on the engines.

13. State taxes were refunded except in Nebraska and in South Dakota where one-half of a 4-cent tax was refunded. Handling charges were 0.75 cents per gallon in South Dakota and 1 cent in North Dakota.

14. The carrier has numerous trade agreements under which it furnishes transportation in exchange for advertising. As of June 30, 1937, it had received advertising to a value of $5,137 and transportation having a cash value of $2,072 had been issued.

aggregated $725 for June, 1937. The executive vice-president was paid a salary of $500 per month beginning in April, 1937. In June, 1937, 10 pilots received an average salary of $581, and 7 copilots an average of $179. A superintendent of traffic, a chief dispatcher, and a superintendent and two assistant superintendents of maintenance received salaries ranging from $200 to $250. During the latter part of the audit period a chief of flight operations was employed at a monthly salary of $450 and a chief dispatcher at Kansas City at $400, together with three solicitors of traffic, two at $145 each and one at $170.

Interlocking relations. Hanford Airlines at first rented and later purchased from its vice-president a Waco training plane equipped with Jacobs engine. The rental paid was at the rate of $6 per hour and aggregated $123. The manufacturer's list price of the plane and engine was approximately $5,500. The price paid by Hanford Airlines was $3,500. Hanford Airlines also leased from the Delaware corporation a landing field, hangar, and passenger station at Sioux City for a monthly rental of $225. The hangar was destroyed by fire and in February, 1937, the rental was reduced to $125 per month. The carrier leased a hangar at Omaha from the Rapid Air Lines, for a monthly rental of $120 which was increased in November, 1936, to $175. One of the directors of Hanford Airlines has an interest in Rapid Air Lines and the latter is a stockholder in the Delaware corporation. Two employees also are minor stockholders in two of the carrier's vendors. With these exceptions and a small amount paid to the Delaware corporation for rent of a plane and engine in September, 1936, no other purchases or rentals were made from vendors or lessors, in whom the employees, officers, or stockholders of Hanford Airlines appear to have had any interest; nor were any other purchases made or rentals paid from which the employeyes, officers, or stockholders of Hanford Airlines appear to have benefited, either directly or indirectly.

Expenditures. The records of the Iowa and Delaware corporations were not maintained in a manner to permit a satisfactory examination of their expenditures. Such investigation as could be made indicated that purchases of maintenance materials and supplies were largely local or emergency, and needs were not anticipated to an extent that would allow quantity buying direct from the manufacturers. No invoices were preserved covering purchase of complete airplanes or engines. Generally, airplane and engine parts were bought from manufacturers at the usual operator's discount or from other airlines. Expenditures for gasoline, oil, and insurance have heretofore been discussed.

The principal expenditure of Hanford Airlines outside of its pay roll was for the three airplanes purchased, the two new ones for $48,075 and $41,403, respectively, including cost of radio installation and certain changes, and the second-hand one for $25,000, complete with engines. Additional engines purchased totaled $26,167, including two at a net price of $4,434 each, three with an average price of $4,389, and one with 60 hours of expired flying time for $4,132. Airplane, engine, and propeller parts were purchased generally at discounts. Expenditures for communication equipment amounted to $15,128. Other important expenditures have been discussed in connection with operating expenses. Payments by Hanford Airlines were made usually in time to secure cash discounts.

Conclusion. Operations on routes Nos. 16 and 26 for the periods under

review have resulted in large deficits[15] which would not be materially reduced by the adjustments herein indicated as proper. On the contrary, the deficits would be greater if the net proceeds from miscellaneous operations were eliminated. No scheduled exclusive passenger service was maintained on-line during the audit period, and the off-line service to Winnipeg was performed only during the brief period of operation of route No. 16.

We find that during the operation of route No. 16 by Hanfords Tri-State Airlines, Incorporated, between June 1, 1934 and June 30, 1934, of routes Nos. 16 and 26 by Hanfords Tri-State Airlines, Inc., from July 1, 1934 to June 30, 1936, no unreasonable profit was derived or accrued from the rates of compensation for the transportation of air mail by airplane over these routes.

By the Commission, Division 3.

W. P. BARTEL,
Secretary.

(SEAL)

INTERSTATE COMMERCE COMMISSION: AIR MAIL DOCKET NO. 46

Pennsylvania-Central Airlines Corporation Air Mail Bid

Decided June 3, 1938

Direction given pursuant to section 3(e) of the Air Mail Act of 1934 in respect of the single bid of Pennsylvania-Central Airlines Corporation for the transportation of air mail by airplane over a proposed route between Detroit and Sault Sainte Marie. Mich.

REPORT OF THE COMMISSION

DIVISION 3, COMMISSIONERS MCMANAMY, MAHAFFIE, AND MILLER

BY DIVISION 3:

Under date of May 26, 1938, the Postmaster General submitted for our "direction" under section 3(e) of the Air Mail Act of 1934, as amended, the single bid of Pennsylvania-Central Airlines Corporation for transporting air mail by airplane over a new air mail route between Detroit and Sault Sainte Marie, Mich.

In response to the Postmaster General's advertisement of April 5, 1938, for service on this route two bids were received, but one[1] was held by the Acting Solicitor of the Post Office Department to be not in legal form and was rejected by the Department, leaving only the one legal bid here considered. Announcement to this effect, and of the submission of the one bid to us, were made public by the Department in the form of a press release.

The advertisement called for sealed proposals for the transportation of air mail on the secondary route described below, on such schedules and under such regulations as may be prescribed by the Postmaster General:

15. Recorded deficits from operations were: Iowa corporation, $2,211; Delaware corporation, $67,903 on route no. 16 and $118,138 on route no. 26; Hanford Airlines, $107,020.

1. The bid of 28½ cents per airplane mile filed by A. Stuart Weeks, of Port Huron, Mich.

Detroit, Mich., to Sault Sainte Marie, Mich., via Flint, Saginaw-Bay City and Cheboygan, Mich., and such other intermediate points as may be designated later by the Postmaster General, a distance of approximately 310 miles.

One round trip daily, except Sundays and holidays, will be authorized, but this frequency is subject to such change as the Post Office Department may deem necessary. Both day and night service may be required.

Section 3(e) of the Air Mail Act of June 12, 1934, as amended, reads as follows:

> If on any route only one bid is received, or if the bids received appear to the Postmaster General to be excessive, he shall either reject them or submit the same to the Interstate Commerce Commission for its direction in the premises before awarding the contract.

Like submissions of single bids were considered in *Inter-Island Airways Air Mail Bid,* 203 I. C C. 772, and *Transcontinental & Western Air Mail Bid,* 223 I. C. C. 281. Section 3(e) does not make formal hearing prerequisite to our action and none was held on previous submissions. No request for hearing or other presentation of facts or views in respect of this bid has been received. The Postmaster General states that the department "has determined that the bidding company is financially responsible and is otherwise a qualified and acceptable bidder" and that the "Department desires to inaugurate the service." He also submitted the following documents for our consideration:

1. Copy of advertisement for air mail service.
2. Copy of proposal of Pennsylvania-Central Airlines Corporation, by C. Bedell Monro, President, dated April 30th, 1938.
3. Bond executed by United States Casualty Company.
4. Affidavit of qualification of bidder.
5. Affidavit as to officers and directors of bidder.
6. List of officers and directors of bidder.
7. List of stockholders, holding more than 5%.
8. Letter as to ability of bidder to meet requirements of Department of Commerce, with reference to letters of authority.
9. Certificate of postmaster as to bidder.
10. Certificate of election of officers.
11. Certified copy of resolutions of Board of Directors conferring authority on President to sign bid.
12. Certificate of authority for Secretary to sign affidavits.
13. Appendix A—list of equipment.
14. Special airline equipment.
15. Certificate of Treasurer.
16. Balance sheet.

Pennsylvania Central now holds contracts for three other secondary air-mail routes. Since October 31, 1936, it has operated air mail route No. 14, between Washington, D. C., and Detroit, via Pittsburgh, Pa., and Akron and Cleveland, Ohio. On April 1, 1938, that route was extended to Norfolk, Va., and operations over the extension were begun April 7, 1938. The

base rate fixed by the Commission for this route is 33-1/3 cents per airplane mile, with a base mileage of 80,000, subject to the scaling provisions of the order of March 11, 1935, as amended June 14, 1937. It has also been operating since October 31, 1936, air mail route No. 32, between Detroit and Milwaukee, Wis., via Lansing, Grand Rapids, and Muskegon, Mich. The present rate fixed by the Commission for the latter route is 33-1/3 cents per airplane mile with a base mileage of 15,500, also subject to the order referred to above. Under date of January 14, 1937, the carrier was permitted by the Department to serve Flint, Mich., on route No. 32, "for supply." As low bidder the carrier was awarded the contract on air mail route No. 34, between Washington and Buffalo, N. Y., via Baltimore, Md., and Harrisburg and Williamsport, Pa., and operations were commenced on October 26, 1937. The rate bid and accepted for this route was eight one-hundred thousands of one cent per airplane mile. In the case of this latter route it is apparent that the carrier was willing to sustain the loss inevitable under the bid rate in order to obtain exclusive operating rights over this route. In addition to these air-mail routes it commenced carrying passengers and express between Pittsburgh and Charleston, W. Va., via Parkersburg, W. Va., on April 8, 1937, with the approval of the Postmaster General, and on March 15, and March 24, 1938, commenced carrying passengers and express between Pittsburgh and Buffalo, and between Pittsburgh and Baltimore, respectively, also with the Postmaster General's approval.

The equipment proposed to be used on the new route consists of 12 Boeing 247-D's manufactured in 1933, which have capacities in excess of those required by the advertisement. These are the same planes now in use in the operation of air mail routes Nos. 14, 32, and 34, and the passenger and express services described above, as shown by the carrier's monthly report for the month of March, 1938, with the exception that one additional plane of the same type is shown as available for use on the new route.

The bidder proposes to carry air mail, including mail equipment, over the route described at a rate of 33-1/3 cents per airplane mile for a load of 300 pounds, or fraction thereof, plus one-tenth of such rate for each additional 100 pounds of mail or fraction thereof, computed at the end of each calendar month on the basis of the average mail load carried per mile over the route during such month, except that in no case shall payment exceed 40 cents per airplane mile. The bid rate is within the maximum limit fixed by the Act.

Considering the territory covered by the proposed route, the amount of passenger and express traffic which may be reasonably anticipated, and the rates fixed for routes Nos. 14 and 32, now operated by the bidder, it does not appear from the facts before us that such bid is excessive, nor is there a suggestion from any source that it will be excessive.

The balance sheet submitted by the bidder with this proposal shows total current assets amounting to $194,268 and total current liabilities of $143,303; and also shows total assets of $850,225, including $238,872 for going-concern value. The liability side shows capital stock of $250,000, and capital surplus $685,879, less a debit balance as of January 1, 1938, of $181,270, and operating loss for 3 months ended March 31, 1938, of $50,577, leaving a net capital surplus of $454,032.

As previously stated, it is planned to conduct the operations over this new route with only a small increase in equipment, and the increase mileage should, of course, result in reduction of per mile costs for items other than those embraced in direct flying costs.

Upon this submission we perceive no objection to the acceptance of the bid by the Postmaster General.

By the Commission, division 3.

W. P. BARTEL,
Secretary.

(SEAL)

INTERNATIONAL

Department Editors ..... {STEPHEN LATCHFORD / SAMUEL E. GATES}

AVIATION ARRANGEMENTS BETWEEN THE UNITED STATES AND CANADA*

(1) Air Navigation

The Secretary of State (Hull) to the Canadian Minister (Marler)

DEPARTMENT OF STATE
Washington, July 28, 1938

SIR:

I have the honor to refer to negotiations which have recently taken place between the Government of the United States of America and the Government of Canada for the conclusion of a reciprocal air navigation arrangement.

It is my understanding that it has been agreed in the course of the negotiations, now terminated, that this arrangement shall be as follows:

ARTICLE I. (a) The present arrangement between the United States of America and Canada relates to the operation in either country of civil aircraft duly registered in territory of the other country in accordance with its requirements as to registration.

(b) The term "civil aircraft" shall for the purposes of this arrangement be understood to mean all aircraft other than military, naval, customs and police aircraft.

ARTICLE II. The present arrangement shall apply to continental United States of America, including Alaska, and to Canada, including their territorial waters.

ARTICLE III. (a) Each of the Parties to the present arrangement shall grant, in time of peace, liberty of passage above its territory to aircraft of the other Party duly registered in the territory of such other Party, provided that the conditions set forth in the present arrangement are observed.

(b) It is, however, agreed that the establishment and operation by an enterprise of one of the Parties of a regular air route or service to, over or away from the territory of the other Party, with or without a stop, shall be subject to the consent of such other Party.

(c) Any air transport enterprise of either Party applying for permission to operate such a route or service shall be required to submit its application through diplomatic channels.

ARTICLE IV. (a) The aircraft of each of the Parties, passengers and goods carried thereon and personnel employed on the aircraft, shall while within or over the territory of the other Party, be subject to the laws in force in that territory, including all regulations relating to air traffic applicable to foreign aircraft, the transport of passengers and goods, and public safety and order, as well as any regulations concerning entry and clearance, immigration, passports, quarantine and customs.

(b) Subject to the provisions of the preceding paragraph and to the laws and regulations therein specified, the carriage of passengers and the import or export of any goods which may lawfully be imported or exported will be permitted in aircraft of either Party into or out of territory of the other Party; and (subject to the same proviso) such aircraft, passengers

* Effected by Exchange of Notes signed July 28, 1938; effective August 1, 1938. From *Executive Agreement Series* Nos. 129, 130 and 131.

and goods carried thereon and personnel employed on the aircraft shall enjoy in the territory mentioned the same privileges as aircraft of such other Party and shall not, merely by reason of the nationality of the aircraft, be subjected to any other or higher duties or charges than those which are or may be imposed on aircraft of the territory referred to or the aircraft of the most favored country, engaged in international commerce, or on their passengers, goods and personnel.

ARTICLE V. The regulations (together with any subsequent alterations therein) relative to air traffic in force in territory of either Party shall be communicated to the other Party.

ARTICLE VI. The fuel and lubricating oils retained on board aircraft of either Party arriving in or leaving territory of the other Party shall be exempt from customs duty, even though the fuel and lubricating oils so retained are used by the aircraft on a flight in that territory.

ARTICLE VII. Aerodromes open to public air traffic in territory of either Party shall, so far as they are under its control, be open to aircraft of the other Party, which (subject to the same proviso) will also be entitled to the assistance of the meteorological, radio, lighting and day and night signalling services at such aerodromes. Subject again to the same proviso, the scale of charges at such aerodromes for landing and accommodation shall be the same for aircraft of each of the Parties.

ARTICLE VIII. (a) The term "air commerce" as used in the succeeding paragraph of this article means:—Navigation of aircraft in territory of either Party in the conduct or furtherance of a business; and the commercial transport of passengers or goods between any two points in the territory of either Party.

(b) Air commerce may, in the territory of either Party, be reserved exclusively to its own aircraft. With the reservation of the stipulations contained in Article III concerning regular air routes or services for which special consent is necessary, the aircraft of either Party may, nevertheless, proceed from any aerodrome open to public air traffic in territory of the other Party to any other such aerodrome for the purpose of taking on board or landing the whole or part of their goods or passengers, provided that such goods are covered by through bills of lading and such passengers hold through tickets, issued respectively for a journey the starting place and end of which are not both points between which air commerce has been reserved; and such aircraft while so proceeding from one aerodrome to another shall, notwithstanding that both such aerodromes are points between which air commerce has been reserved, be entitled to the treatment set out in this arrangement.

ARTICLE IX. (a) Air traffic may be prohibited over specified areas in the territories to which this arrangement applies, it being understood that no distinction in this matter will be made by either Party between its aircraft engaged in international commerce and the aircraft of the other Party likewise engaged. Lists of the areas above which air traffic is thus prohibited in territory of either Party, as well as any subsequent alterations therein, will be communicated as soon as possible to the other Party.

(b) In exceptional circumstances air traffic above the whole or any part of the territories to which this arrangement applies may temporarily, and with immediate effect, be limited or prohibited, but no distinction in this respect will be made by either Party between the aircraft of the other Party and the aircraft of any other foreign country.

(c) In the event of any aircraft finding itself over a prohibited area it must, as soon as it is aware of the fact, give the signal of distress prescribed in the Rules of the Air in force in the territory in which the prohibited area is situated, and a landing must be effected as soon as practicable at an aerodrome in that territory, outside but as near as possible to the prohibited area. The obligation to land applies also in respect to flights over prohibited areas by aircraft to which the special signal intended to draw their attention shall have been given.

ARTICLE X. (a) All aircraft of either Party flying in or over the territory of the other Party must carry clear and visible nationality and registration marks whereby they may be recognized during flight.

(b) Such aircraft must also be provided with certificates of registration and airworthiness and with all the other documents prescribed for air traffic in the territory in which they are registered.

(c) The persons employed on such aircraft who perform duties for which a certificate of competency or license is required in the territory in which the aircraft is registered, must carry such documents as are prescribed by the regulations in force in that territory.

(d) The other persons employed on board must carry documents showing their duties in the aircraft, their profession, identity and nationality.

(e) Each of the Parties reserves the right to require lists of the passengers and persons employed on board as well as a manifest of the goods carried on the aircraft.

(f) The certificate of airworthiness, certificates of competency or licenses issued or rendered valid by the competent authorities of either country in respect of its aircraft or of the crew of such aircraft shall be recognized as having the same validity in the territory of the other country as the corresponding documents issued or rendered valid by the competent authorities of such other country; provided that with respect to certificates of competency or licenses issued or rendered valid by either country in favor of nationals of the other country, such recognition may be refused by the latter country.

ARTICLE XI. (a) Aircraft of either Party may, in or over the territory of the other Party, carry radio apparatus only if a license to install and work such apparatus, which license must be carried in the aircraft, has been issued by the competent authorities of the territory in which the aircraft is registered. The use of such apparatus shall be in accordance with the regulations on the subject issued by the competent authorities of the territory flown over.

(b) Such apparatus may be used only by the personnel employed on board who are provided with a special license for the purpose, issued by the competent authorities of the territory in which the aircraft is registered.

(c) For reasons of safety each of the Parties to this arrangement reserves the right to issue regulations relative to the obligatory equipment of aircraft with radio apparatus when in or over its territory.

ARTICLE XII. (a) No explosives, arms of war or munitions of war may be carried by aircraft of either Party in or above the territory of the other Party, or by the personnel employed on board or passengers, except by permission of the competent authorities of that territory.

(b) However, the carriage of accessories necessary to the operation and navigation of the aircraft, such as rockets, flares, and similar devices is not prohibited.

(c) Each of the Parties reserves the right to require that the carriage by aircraft of photographic apparatus be prohibited or regulated by the competent authorities of the territory flown over.

(d) Each of the Parties reserves the right, for reasons of public order and safety, to limit or prohibit the carriage in or above its territory of articles other than those enumerated in paragraph (a) of this article, provided that no distinction is made in this respect between its national aircraft employed in international traffic and the aircraft of the other Party so employed.

ARTICLE XIII. The competent authorities of each of the Parties shall have the right to search aircraft of the other Party on landing or departure and to inspect the certificates and other documents prescribed in the preceding articles.

ARTICLE XIV. (a) Aircraft of either Party entering or leaving territory of the other Party shall make a first landing at and depart from only an aerodrome open to public air traffic and designated as an airport of entry where facilities exist for the enforcement of customs, passport, quarantine and immigration regulations and the entry and clearance of aircraft; and no intermediate landing other than a forced landing may be effected before

arriving at such an aircraft on entry into the territory concerned or after leaving such an airport on departure from that territory. In special cases, and subject to the same provisions as to intermediate landing, the competent authorities may allow a first landing at or a departure from another aerodrome where the above-mentioned facilities have been arranged.

(b) Each of the Parties reserves the right to require that aircraft entering its territory shall make its first landing at the airport of entry nearest to the point where the aircraft has crossed the frontier, with the understanding, however, that in this event, permission may be granted for the aircraft to make its first landing at an airport of entry other than the one nearest to the frontier.

(c) In the event of a forced landing or of a landing as provided in paragraph (c) of Article IX, not at an airport of the class mentioned in the preceding paragraph, the personnel employed on board and passengers must conform to the entry and clearance, customs, passport, quarantine and immigration regulations in force in the territory in which the landing occurs.

(d) Lists of aerodromes in territory of either Party which are designated as airports of entry for the purposes of this article will be communicated as soon as possible to the other Party. Any subsequent alterations in these lists will also be communicated to such other Party.

ARTICLE XV. The competent authorities of either Party may require that on entering or leaving its territory the aircraft of the other Party shall do so between specified points. Any requirements of either Party in this respect and any subsequent alterations therein shall be communicated to the other Party. Subject to any such requirement and to the provisions of this arrangement, aircraft of each Party may choose their own route of entry or departure in entering or leaving territory of the other Party.

ARTICLE XVI. No article or substance, other than ballast, may be unloaded or otherwise discharged from aircraft of either Party in the course of flight in or over the territory of the other Party unless special permission to that effect is given by the competent authorities of the territory in which the unloading or discharge occurs. For the purposes of this article ballast means fine sand or water only.

ARTICLE XVII. (a) The present arrangement or any part thereof may be terminated by either Government at any time upon sixty days' notice given in writing to the other Government.

(b) On the date that the present arrangement becomes effective, the reciprocal arrangement between the United States of America and Canada for the admission of civil aircraft, the issuance by each country of pilots' licenses to nationals of the other country and the reciprocal acceptance of certificates of airworthiness for aircraft imported as merchandise, entered into by an exchange of notes dated August 29, 1929 and October 22, 1929, will be supplanted with the exception of the provisions of the latter arrangement which set forth the conditions governing the issuance of pilots' licenses and the acceptance of certificates of airworthiness for aircraft imported as merchandise.[1]

I shall be glad to have you inform me whether it is the understanding of your Government that the terms of the arrangement agreed to in the negotiations are as above set forth. If so, it is suggested that the arrangement become effective on August 1, 1938. If your Government concurs in

1. The present arrangement, signed July 28, 1938, and effective August 1, 1938, relating to air navigation and two other arrangements between the United States of America and Canada, both also signed July 28, 1938, and effective August 1, 1938, one relating to certificates of competency or licenses for the piloting of civil aircraft (Executive Agreement Series No. 130) and the other relating to certificates of airworthiness for export (Executive Agreement Series No. 131), supplant in its entirety the reciprocal arrangement between the United States of America and Canada for the admission of civil aircraft, the issuance of pilots' licenses, and the acceptance of certificates of airworthiness for aircraft imported as merchandise, entered into by an exchange of notes signed August 29 and October 22, 1929 (Executive Agreement Series No. 2).

this suggestion the Government of the United States will regard it as becoming effective on that date.

Accept, Sir, the renewed assurances of my highest consideration.

CORDELL HULL.

The Honorable
Sir HERBERT MARLER, P. C., K. C. M. G.,
Minister of Canada.

The Canadian Minister (Marler) to the Secretary of State (Hull)

No. 175.

CANADIAN LEGATION
Washington, July 28th, 1938.

SIR:

I have the honour to acknowledge the receipt of your note of July 28th, 1938, in which you communicated to me the terms of a reciprocal air navigation arrangement between Canada and the United States of America, as understood by you to have been agreed to in negotiations, now terminated, between the Government of Canada and the Government of the United States of America.

The terms of this arrangement which you have communicated to me are as follows:

ARTICLE I. (a) The present arrangement between the United States of America and Canada relates to the operation in either country of civil aircraft duly registered in territory of the other country in accordance with its requirements as to registration.

(b) The term "civil aircraft" shall for the purposes of this arrangement be understood to mean all aircraft other than military, naval, customs and police aircraft.

ARTICLE II. The present arrangement shall apply to continental United States of America, including Alaska, and to Canada, including their territorial waters.

ARTICLE III. (a) Each of the Parties to the present arrangement shall grant, in time of peace, liberty of passage above its territory to aircraft of the other Party duly registered in the territory of such other Party, provided that the conditions set forth in the present arrangement are observed.

(b) It is, however, agreed that the establishment and operation by an enterprise of one of the Parties of a regular air route or service to, over or away from the territory of the other Party, with or without a stop, shall be subject to the consent of such other Party.

(c) Any air transport enterprise of either Party applying for permission to operate such a route or service shall be required to submit its application through diplomatic channels.

ARTICLE IV. (a) The aircraft of each of the Parties, passengers and goods carried thereon and personnel employed on the aircraft, shall while within or over the territory of the other Party, be subject to the laws in force in that territory, including all regulations relating to air traffic applicable to foreign aircraft, the transport of passengers and goods, and public safety and order, as well as any regulations concerning entry and clearance, immigration, passports, quarantine and customs.

(b) Subject to the provisions of the preceding paragraph and to the laws and regulations therein specified, the carriage of passengers and the import or export of any goods which may lawfully be imported or exported will be permitted in aircraft of either Party into or out of territory of the other Party; and (subject to the same proviso) such aircraft, passengers and goods carried thereon and personnel employed on the aircraft shall enjoy in the territory mentioned the same privileges as aircraft of such other Party and shall not, merely by reason of the nationality of the aircraft, be

subjected to any other or higher duties or charges than those which are or may be imposed on aircraft of the territory referred to or the aircraft of the most favoured country, engaged in international commerce, or on their passengers, goods and personnel.

ARTICLE V. The regulations (together with any subsequent alterations therein) relative to air traffic in force in territory of either Party shall be communicated to the other Party.

ARTICLE VI. The fuel and lubricating oils retained on board aircraft of either Party arriving in or leaving territory of the other Party shall be exempt from customs duty, even though the fuel and lubricating oils so retained are used by the aircraft on a flight in that territory.

ARTICLE VII. Aerodromes open to public air traffic in territory of either Party shall, so far as they are under its control, be open to aircraft of the other Party, which (subject to the same proviso) will also be entitled to the assistance of the meteorological, radio, lighting and day and night signalling services at such aerodromes. Subject again to the same proviso, the scale of charges at such aerodromes for landing and accommodation shall be the same for aircraft of each of the Parties.

ARTICLE VIII. (a) The term "air commerce" as used in the succeeding paragraph of this article means:—Navigation of aircraft in territory of either Party in the conduct or furtherance of a business; and the commercial transport of passengers or goods between any two points in the territory of either Party.

(b) Air commerce may, in the territory of either Party, be reserved exclusively to its own aircraft. With the reservation of the stipulations contained in Article III concerning regular air routes or services for which special consent is necessary, the aircraft of either Party may, nevertheless, proceed from any aerodrome open to public air traffic in territory of the other Party to any other such aerodrome for the purpose of taking on board or landing the whole or part of their goods or passengers, provided that such goods are covered by through bills of lading and such passengers hold through tickets, issued respectively for a journey the starting place and end of which are not both points between which air commerce has been reserved; and such aircraft while so proceeding from one aerodrome to another shall, notwithstanding that both such aerodromes are points between which air commerce has been reserved, be entitled to the treatment set out in this arrangement.

ARTICLE IX. (a) Air traffic may be prohibited over specified areas in the territories to which this arrangement applies, it being understood that no distinction in this matter will be made by either Party between its aircraft engaged in international commerce and the aircraft of the other Party likewise engaged. Lists of the areas above which air traffic is thus prohibited in territory of either Party, as well as any subsequent alterations therein, will be communicated as soon as possible to the other Party.

(b) In exceptional circumstances air traffic above the whole or any part of the territories to which this arrangement applies may temporarily, and with immediate effect, be limited or prohibited, but no distinction in this respect will be made by either Party between the aircraft of the other Party and the aircraft of any other foreign country.

(c) In the event of any aircraft finding itself over a prohibited area it must, as soon as it is aware of the fact, give the signal of distress prescribed in the Rules of the Air in force in the territory in which the prohibited area is situated, and a landing must be effected as soon as practicable at an aerodrome in that territory, outside but as near as possible to the prohibited area. The obligation to land applies also in respect to flights over prohibited areas by aircraft to which the special signal intended to draw their attention shall have been given.

ARTICLE X. (a) All aircraft of either Party flying in or over the territory of the other Party must carry clear and visible nationality and registration marks whereby they may be recognized during flight.

(b) Such aircraft must also be provided with certificates of registration and airworthiness and with all the other documents prescribed for air traffic in the territory in which they are registered.

(c) The persons employed on such aircraft who perform duties for which a certificate of competency or license is required in the territory in which the aircraft is registered, must carry such documents as are prescribed by the regulations in force in that territory.

(d) The other persons employed on board must carry documents showing their duties in the aircraft, their profession, identity and nationality.

(e) Each of the Parties reserves the right to require lists of the passengers and persons employed on board as well as a manifest of the goods carried on the aircraft.

(f) The certificate of airworthiness, certificates of competency or licenses issued or rendered valid by the competent authorities of either country in respect of its aircraft or of the crew of such aircraft shall be recognized as having the same validity in the territory of the other country as the corresponding documents issued or rendered valid by the competent authorities of such other country; provided that with respect to certificates of competency or licenses issued or rendered valid by either country in favour of nationals of the other country, such recognition may be refused by the latter country.

ARTICLE XI. (a) Aircraft of either Party may, in or over the territory of the other Party, carry radio apparatus only if a license to install and work such apparatus, which license must be carried in the aircraft, has been issued by the competent authorities of the territory in which the aircraft is registered. The use of such apparatus shall be in accordance with the regulations on the subject issued by the competent authorities of the territory flown over.

(b) Such apparatus may be used only by the personnel employed on board who are provided with a special license for the purpose, issued by the competent authorities of the territory in which the aircraft is registered.

(c) For reasons of safety each of the Parties to this arrangement reserves the right to issue regulations relative to the obligatory equipment of aircraft with radio apparatus when in or over its territory.

ARTICLE XII. (a) No explosives, arms of war or munitions of war may be carried by aircraft of either Party in or above the territory of the other Party, or by the personnel employed on board or passengers, except by permission of the competent authorities of that territory.

(b) However, the carriage of accessories necessary to the operation and navigation of the aircraft, such as rockets, flares, and similar devices is not prohibited.

(c) Each of the Parties reserves the right to require that the carriage by aircraft of photographic apparatus be prohibited or regulated by the competent authorities of the territory flown over.

(d) Each of the Parties reserves the right, for reasons of public order and safety, to limit or prohibit the carriage in or above its territory of articles other than those enumerated in paragraph (a) of this article, provided that no distinction is made in this respect between its national aircraft employed in international traffic and the aircraft of the other Party so employed.

ARTICLE XIII. The competent authorities of each of the Parties shall have the right to search aircraft of the other Party on landing or departure and to inspect the certificates and other documents prescribed in the preceding articles.

ARTICLE XIV. (a) Aircraft of either Party entering or leaving territory of the other Party shall make a first landing at and depart from only an aerodrome open to public air traffic and designated as an airport of entry where facilities exist for the enforcement of customs, passport, quarantine and immigration regulations and the entry and clearance of aircraft; and no intermediate landing other than a forced landing my be effected before arriving at such an airport on entry into the territory concerned or after leaving such an airport on departure from that territory. In special cases, and

subject to the same provisions as to intermediate landing, the competent authorities may allow a first landing at or a departure from another aerodrome where the above-mentioned facilities have been arranged.

(b) Each of the Parties reserves the right to require that aircraft entering its territory shall make its first landing at the airport of entry nearest to the point where the aircraft has crossed the frontier, with the understanding, however, that in this event, permission may be granted for the aircraft to make its first landing at an airport of entry other than the one nearest to the frontier.

(c) In the event of a forced landing or of a landing as provided in paragraph (c) of Article IX, not at an airport of the class mentioned in the preceding paragraph, the personnel employed on board and passengers must conform to the entry and clearance, customs, passport, quarantine and immigration regulations in force in the territory in which the landing occurs.

(d) Lists of aerodromes in territory of either Party which are designated as airports of entry for the purposes of this article will be communicated as soon as possible to the other Party. Any subsequent alterations in these lists will also be communicated to such other Party.

ARTICLE XV. The competent authorities of either Party may require that on entering or leaving its territory the aircraft of the other Party shall do so between specified points. Any requirements of either Party in this respect and any subsequent alterations therein shall be communicated to the other Party. Subject to any such requirement and to the provisions of this arrangement, aircraft of each Party may choose their own route of entry or departure in entering or leaving territory of the other Party.

ARTICLE XVI. No article or substance, other than ballast, may be unloaded or otherwise discharged from aircraft of either Party in the course of flight in or over the territory of the other Party unless special permission to that effect is given by the competent authorities of the territory in which the unloading or discharge occurs. For the purposes of this article ballast means fine sand or water only.

ARTICLE XVII. (a) The present arrangement or any part thereof may be terminated by either Government at any time upon sixty days' notice given in writing to the other Government.

(b) On the date that the present arrangement becomes effective, the reciprocal arrangement between the United States of America and Canada for the admission of civil aircraft, the issuance by each country of pilots' licenses to nationals of the other country and the reciprocal acceptance of certificates of airworthiness for aircraft imported as merchandise, entered into by an exchange of notes dated August 29, 1929 and October 22, 1929, will be supplanted with the exception of the provisions of the latter arrangement which set forth the conditions governing the issuance of pilots' licenses and the acceptance of certificates of airworthiness for aircraft imported as merchandise.[2]

I am instructed to state that the terms of the arrangement as communicated to me are agreed to by my Government.

I am further instructed to inform you that my Government concurs in your suggestion that the arrangement become effective on August 1st, 1938, and will accordingly regard it as becoming effective on that date.

I have the honour to be with the highest consideration Sir

Your most obedient humble servant

HERBERT M. MARLER.

The Honourable CORDELL HULL,
Secretary of State of the United States,
Washington, D. C.

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2. See footnote 1, *ante*, p. 7.

(2) Pilot Certificates to Operate Civil Aircraft

The Secretary of State (Hull) to the Canadian Minister (Marler)

DEPARTMENT OF STATE
Washington, July 28, 1938.

SIR:

I have the honor to refer to negotiations which have recently taken place between the Government of the United States of America and the Government of Canada for the conclusion of a reciprocal arrangement for the issuance by each country of certificates of competency or licenses to nationals of the other country for the piloting of civil aircraft.

It is my understanding that it has been agreed in the course of the negotiations, now terminated, that the arrangement shall be as follows:

ARTICLE I. (a) The present arrangement between the United States of America and Canada relates to the issuance by the competent authorities of each country of pilot certificates of competency or licenses to nationals of the other country for the piloting of civil aircraft.

(b) The term "civil aircraft" shall for the purpose of this arrangement be understood to mean all aircraft other than military, naval, customs and police aircraft.

(c) Either country issuing certificates of competency or licenses to nationals of the other country for the piloting of civil aircraft, as defined in the preceding paragraph, reserves, however, the right to limit such issuance to the operation of civil aircraft for non-commercial purposes.

ARTICLE II. Pursuant to the provisions of Article I, the competent United States authorities will issue pilot certificates of competency or licenses to nationals of Canada, upon a showing that they are qualified under the regulations of the United States covering the issuance of such certificates or licenses.

ARTICLE III. Pursuant to the provisions of Article I, the competent Canadian authorities will issue pilot certificates of competency or licenses to nationals of the United States, upon a showing that they are qualified under the regulations of Canada covering the issuance of such certificates or licenses.

ARTICLE IV. Subject to the provisions of Articles I and II, pilot certificates of competency or licenses issued by the competent United States authorities to nationals of Canada shall entitle them to the same privileges in the matter of air pilotage as are granted by pilot certificates of competency or licenses issued to nationals of the United States.

ARTICLE V. Subject to the provisions of Articles I and III, pilot certificates of competency or licenses issued by the competent Canadian authorities to nationals of the United States shall entitle them to the same privileges in the matter of air pilotage as are granted by pilot certificates of competency or licenses issued to nationals of Canada.

ARTICLE VI. (a) The present arrangement shall be subject to termination by either Government upon sixty days' notice given in writing to the other Government.

(b) On the date that the present arrangement becomes effective, the reciprocal arrangement between the United States of America and Canada for the admission of civil aircraft, the issuance by each country of pilots' licenses to nationals of the other country and the reciprocal acceptance of certificates of airworthiness for aircraft imported as merchandise, entered into by an exchange of notes dated August 29, 1929 and October 22, 1929, will be supplanted in so far as it sets forth the conditions governing the issuance by each country of pilots' licenses to nationals of the other country.[1]

1. The present arrangement, signed July 28, 1938, and effective August 1, 1938, relating to certificates of competency or licenses for the piloting of civil aircraft and two other arrangements between the United States of America and Canada, both also signed July 28, 1938, and effective August 1, 1938, one relating to air navigation (Executive Agreement Series No. 129) and the other

I shall be glad to have you inform me whether it is the understanding of your Government that the terms of the arrangement agreed to in the negotiations are as above set forth. If so, it is suggested that the arrangement become effective on August 1, 1938. If your Government concurs in this suggestion the Government of the United States will regard it as becoming effective on that date.

Accept, Sir, the renewed assurances of my highest consideration.

CORDELL HULL.

The Honorable
Sir HERBERT MARLER, P. C., K. C. M. G.,
Minister of Canada.

The Canadian Minister (Marler) to the Secretary of State (Hull)

No. 176

CANADIAN LEGATION
Washington, July 28th, 1938.

SIR:

I have the honour to acknowledge the receipt of your note of July 28th, 1938, in which you communicated to me the terms of a reciprocal arrangement between Canada and the United States of America for the issuance by each country of certificates of competency or licenses to nationals of the other country for the piloting of civil aircraft, as understood by you to have been agreed to in negotiations, now terminated, between the Government of Canada and the Government of the United States of America.

The terms of this arrangement which you have communicated to me are as follows:

ARTICLE I. (a) The present arrangement between the United States of America and Canada relates to the issuance by the competent authorities of each country of pilot certificates of competency or licenses to nationals of the other country for the piloting of civil aircraft.

(b) The term "civil aircraft" shall for the purpose of this arrangement be understood to mean all aircraft other than military, naval, customs and police aircraft.

(c) Either country issuing certificates of competency or licenses to nationals of the other country for the piloting of civil aircraft, as defined in the preceding paragraph, reserves, however, the right to limit such issuance to the operation of civil aircraft for non-commercial purposes.

ARTICLE II. Pursuant to the provisions of Article I, the competent United States authorities will issue pilot certificates of competency or licenses to nationals of Canada, upon a showing that they are qualified under the regulations of the United States covering the issuance of such certificates or licenses.

ARTICLE III. Pursuant to the provisions of Article I, the competent Canadian authorities will issue pilot certificates of competency or licenses to nationals of the United States, upon a showing that they are qualified under the regulations of Canada covering the issuance of such certificates or licenses.

ARTICLE IV. Subject to the provisions of Articles I and II, pilot certificates of competency or licenses issued by the competent United States authorities to nationals of Canada shall entitle them to the same privileges in the matter of air pilotage as are granted by pilot certificates of competency or licenses issued to nationals of the United States.

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relating to certificates of airworthiness for export (Executive Agreement Series No. 131), supplant in its entirety the reciprocal arrangement between the United States of America and Canada for the admission of civil aircraft, the issuance of pilots' licenses, and the acceptance of certificates of airworthiness for aircraft imported as merchandise, entered into by an exchange of notes signed August 29 and October 22, 1929 (Executive Agreement Series No. 2).

ARTICLE V. Subject to the provisions of Articles I and III, pilot certificates of competency or licenses issued by the competent Canadian authorities to nationals of the United States shall entitle them to the same privileges in the matter of air pilotage as are granted by pilot certificates of competency or licenses issued to nationals of Canada.

ARTICLE VI. (a) The present arrangement shall be subject to termination by either Government upon sixty days' notice given in writing to the other Government.

(b) On the date that the present arrangement becomes effective, the reciprocal arrangement between the United States of America and Canada for the admission of civil aircraft, the issuance by each country of pilots' licenses to nationals of the other country and the reciprocal acceptance of certificates of airworthiness for aircraft imported as merchandise, entered into by an exchange of notes dated August 29, 1929 and October 22, 1929, will be supplanted in so far as it sets forth the conditions governing the issuance by each country of pilots' licenses to nationals of the other country.[2]

I am instructed to state that the terms of the arrangement as communicated to me are agreed to by my Government.

I am further instructed to inform you that my Government concurs in your suggestion that the arrangement become effective on August 1st, 1938, and will accordingly regard it as becoming effective on that date.

I have the honour to be with the highest consideration Sir

Your most obedient humble servant

HERBERT M. MARLER.

The Honourable CORDELL HULL,
Secretary of State of the United States,
Washington, D. C.

(3) Certificates of Airworthiness for Export

The Secretary of State (Hull) to the Canadian Minister (Marler)

DEPARTMENT OF STATE
Washington, July 28, 1938.

SIR:

I have the honor to refer to negotiations which have recently taken place between the Government of the United States of America and the Government of Canada for the conclusion of a reciprocal arrangement for the acceptance of certificates of airworthiness for export.

It is my understanding that it has been agreed in the course of the negotiations, now terminated, that the arrangement shall be as follows:

ARTICLE I. (a) The present arrangement applies to civil aircraft constructed in continental United States of America, including Alaska, and exported to Canada; and to civil aircraft constructed in Canada and exported to continental United States of America, including Alaska.

(b) This arrangement shall extend to civil aircraft of all categories, including those used for public transport and those used for private purposes as well as to components of such aircraft.

ARTICLE II. The same validity shall be conferred by the competent United States authorities on certificates of airworthiness for export issued by the competent Canadian authorities for aircraft subsequently to be registered in the United States as if they had been issued under the regulations in force on the subject in the United States, provided that such aircraft have been constructed in Canada in accordance with the airworthiness requirements of Canada.

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2. See footnote 1, *ante*, p. 2.

ARTICLE III. The same validity shall be conferred by the competent Canadian authorities on certificates of airworthiness for export issued by the competent United States authorities for aircraft subsequently to be registered in Canada as if they had been issued under the regulations in force on the subject in Canada, provided that such aircraft have been constructed in continental United States or Alaska in accordance with the airworthiness requirements of the United States.

ARTICLE IV. (a) The competent United States authorities shall arrange for the effective communication to the competent Canadian authorities of particulars of compulsory modifications prescribed in the United States, for the purpose of enabling the Canadian authorities to require these modifications to be made to aircraft of the types affected, whose certificates have been validated by them.

(b) The competent United States authorities shall, where necessary, afford the competent Canadian authorities facilities for dealing with non-compulsory modifications which are such as to affect the validity of certificates of airworthiness validated under the terms of this arrangement, or any of the other original conditions of validation. They will similarly give facilities for dealing with cases of major repairs carried out otherwise than by the fitting of spare parts supplied by the original constructors.

ARTICLE V. (a) The competent Canadian authorities shall arrange for the effective communication to the competent United States authorities of particulars of compulsory modifications prescribed in Canada, for the purpose of enabling the United States authorities to require these modifications to be made to aircraft of the types affected, whose certificates have been validated by them.

(b) The competent Canadian authorities shall, where necessary, afford the competent United States authorities facilities for dealing with noncompulsory modifications which are such as to affect the validity of certificates of airworthiness validated under the terms of this arrangement, or any of the other original conditions of validation. They will similarly give facilities for dealing with cases of major repairs carried out otherwise than by the fitting of spare parts supplied by the original constructors.

ARTICLE VI. (a) The competent authorities of each country shall have the right to make the validation of certificates of airworthiness for export dependent upon the fulfillment of any special conditions which are for the time being required by them for the issue of certificates of airworthiness in their own country. Information with regard to these special conditions in respect to either country will from time to time be communicated to the competent authorities of the other country.

(b) The competent authorities of each country shall keep the competent authorities of the other country fully and currently informed of all regulations in force in regard to the airworthiness of civil aircraft and any changes therein that may from time to time be effected.

ARTICLE VII. The question of procedure to be followed in the application of the provisions of the present arrangement shall be the subject of direct correspondence, whenever necessary, between the competent United States and Canadian authorities.

ARTICLE VIII. (a) The present arrangement shall be subject to termination by either Government upon sixty days' notice given in writing to the other Government.

(b) On the date that the present arrangement becomes effective, the reciprocal arrangement between the United States of America and Canada for the admission of civil aircraft, the issuance by each country of pilots' licenses to nationals of the other country and the reciprocal acceptance of certificates of airworthiness for aircraft imported as merchandise, entered into by an exchange of notes dated August 29, 1929 and October 22, 1929,

will be supplanted in so far as it sets forth the conditions governing the reciprocal acceptance of certificates of airworthiness for aircraft imported as merchandise.[1]

I shall be glad to have you inform me whether it is the understanding of your Government that the terms of the arrangement agreed to in the negotiations are as above set forth. If so, it is suggested that the arrangement become effective on August 1, 1938. If your Government concurs in this suggestion the Government of the United States will regard it as becoming effective on that date.

Accept, Sir, the renewed assurances of my highest consideration.

CORDELL HULL.

The Honorable
Sir HERBERT MARLER, P. C., K. C. M. G.,
Minister of Canada.

The Canadian Minister (Marler) to the Secretary of State (Hull)

No. 177

CANADIAN LEGATION
Washington, July 28th, 1938.

SIR:

I have the honour to acknowledge the receipt of your note of July 28th, 1938, in which you communicated to me the terms of a reciprocal arrangement between Canada and the United States of America for the acceptance of certificates of airworthiness for export, as understood by you to have been agreed to in negotiations, now terminated, between the Government of Canada and the Government of the United States of America.

The terms of this arrangement which you have communicated to me are as follows:

ARTICLE I. (a) The present arrangement applies to civil aircraft constructed in continental United States of America, including Alaska, and exported to Canada; and to civil aircraft constructed in Canada and exported to continental United States of America, including Alaska.

(b) This arrangement shall extend to civil aircraft of all categories, including those used for public transport and those used for private purposes as well as to components of such aircraft.

ARTICLE II. The same validity shall be conferred by the competent United States authorities on certificates of airworthiness for export issued by the competent Canadian authorities for aircraft subsequently to be registered in the United States as if they had been issued under the regulations in force on the subject in the United States, provided that such aircraft have been constructed in Canada in accordance with the airworthiness requirements of Canada.

ARTICLE III. The same validity shall be conferred by the competent Canadian authorities on certificates of airworthiness for export issued by the competent United States authorities for aircraft subsequently to be registered

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1. The present arrangement, signed July 28, 1938, and effective August 1, 1938, relating to certificates of airworthiness for export and two other arrangements between the United States of America and Canada, both also signed July 28, 1938, and effective August 1, 1938, one relating to air navigation (Executive Agreement Series No. 129) and the other relating to certificates of competency or licenses for the piloting of civil aircraft (Executive Agreement Series No. 130), supplant in its entirety the reciprocal arrangement between the United States of America and Canada for the admission of civil aircraft, the issuance of pilots' licenses, and the acceptance of certificates of airworthiness for aircraft imported as merchandise, entered into by an exchange of notes signed August 29 and October 22, 1929 (Executive Agreement Series No. 2).

in Canada as if they had been issued under the regulations in force on the subject in Canada, provided that such aircraft have been constructed in continental United States or Alaska in accordance with the airworthiness requirements of the United States.

ARTICLE IV. (a) The competent United States authorities shall arrange for the effective communication to the competent Canadian authorities of particulars of compulsory modifications prescribed in the United States, for the purpose of enabling the Canadian authorities to require those modifications to be made to aircraft of the types affected, whose certificates have been validated by them.

(b) The competent United States authorities shall, where necessary, afford the competent Canadian authorities facilities for dealing with noncompulsory modifications which are such as to affect the validity of certificates of airworthiness validated under the terms of this arrangement, or any of the other original conditions of validation. They will similarly give facilities for dealing with cases of major repairs carried out otherwise than by the fitting of spare parts supplied by the original constructors.

ARTICLE V. (a) The competent Canadian authorities shall arrange for the effective communication to the competent United States authorities of particulars of compulsory modifications prescribed in Canada, for the purpose of enabling the United States authorities to require these modifications to be made to aircraft of the types affected, whose certificates have been validated by them.

(b) The competent Canadian authorities shall, where necessary, afford the competent United States authorities facilities for dealing with noncompulsory modifications which are such as to affect the validity of certificates of airworthiness validated under the terms of this arrangement, or any of the other original conditions of validation. They will similarly give facilities for dealing with cases of major repairs carried out otherwise than by the fitting of spare parts supplied by the original constructors.

ARTICLE VI. (a) The competent authorities of each country shall have the right to make the validation of certificates of airworthiness for export dependent upon the fulfillment of any special conditions which are for the time being required by them for the issue of certificates of airworthiness in their own country. Information with regard to these special conditions in respect to either country will from time to time be communicated to the competent authorities of the other country.

(b) The competent authorities of each country shall keep the competent authorities of the other country fully and currently informed of all regulations in force in regard to the airworthiness of civil aircraft and any changes therein that may from time to time be effected.

ARTICLE VII. The question of procedure to be followed in the application of the provisions of the present arrangement shall be the subject of direct correspondence, whenever necessary, between the competent United States and Canadian authorities.

ARTICLE VIII. (a) The present arrangement shall be subject to termination by either Government upon sixty days' notice given in writing to the other Government.

(b) On the date that the present arrangement becomes effective, the reciprocal arrangement between the United States of America and Canada for the admission of civil aircraft, the issuance by each country of pilots' licenses to nationals of the other country and the reciprocal acceptance of certificates of airworthiness for aircraft imported as merchandise, entered into by an exchange of notes dated August 29, 1929 and October 22, 1929, will be supplanted in so far as it sets forth the conditions governing the reciprocal acceptance of certificates of airworthiness for aircraft imported as merchandise.[2]

2. See footnote 1, *ante*, p. 3.

I am instructed to state that the terms of the arrangement as communicated to me are agreed to by my Government.

I am further instructed to inform you that my Government concurs in your suggestion that the arrangement become effective on August 1st, 1938, and will accordingly regard it as becoming effective on that date.

I have the honour to be with the highest consideration Sir

Your most obedient humble servant

HERBERT M. MARLER.

The Honourable CORDELL HULL,
Secretary of State of the United States,
Washington, D. C.